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A Visual Phenomenological Methodology:

The Repositioning of Visual Communication Design as a Fresh Influence on Interaction Design.

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Abstract

This practiced-based thesis examines how a new *Visual Communication* methodology helps interaction designers to improve their future designs. This is achieved by engaging in creating visual interpretations from a lived experience that they need to design for, to reveal the phenomenological *essence* of what users have actually experienced, rather than what they say they have. This new *Visual Phenomenological Methodology* (**VPM**) places interaction designers into a specific communicational situation, in order to understand the phenomena of users' lived experience 'through their eyes.' Thus immersed, interaction designers montage visual interpretations of what users saw/felt/did in the lived experience.

The **VPM** facilitates interaction designers into designer-interpreters, who can interpret sensory data into a behavioural story of what its like to be the user in a lived experience. This thesis has developed the **VPM** across three peer reviewed, practice-based projects, using a synthesis of the pragmatic semiotics of Peirce, Hermeneutic Phenomenology, and *visual communication* techniques. Following the Frascaran view that the design discipline of *Visual Communication* (graphic design and illustration) is a positive facilitator of behavioural change, the **VPM** employs this *hermeneutic-semiosis* synthesis to facilitate interaction designers to develop a deeper and emergent understanding of the hidden motivations behind user behaviour.

Through a contextual review into *Visual Communication*, Interaction Design, Phenomenology and Semiosis, this thesis develops the **VPM** from a theoretical concept, to a set of designer-friendly method cards that interaction designers can employ during their ideation phase. Throughout its development the **VPM** and its method cards were workshopped and peer reviewed by interaction designers. This thesis, over the following seven chapters, demonstrates how the **VPM** successfully provided *Visual Communication* design with a fresh way to re-influence Interaction Design, as a new contribution to knowledge.

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Dave Wood, Edinburgh, Jan 2016

Declaration

I, Dave Wood confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis. This thesis has not been submitted for any other degree or professional qualification.

Signed: *Date: 12/1/2016*

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Chapter 1: Introduction

It is difficult to know for certain that the lived experience of one human will be the same as that of other humans. Yet, interaction designers have to find a way of designing new interactions, to suit their target audiences. Leonard says, "to understand a person's behaviour or expressions one has to study the person in context. For it is only in context that what a person values and finds significant shows up" (1994, p51). This PhD is a practice-based inquiry, focused on a practical repositioning of the discipline of *Visual Communication*[1] as a renewed influence on Interaction Design.[2] As an original contribution to knowledge, this thesis focuses on placing *Visual Communication* in a proximity to interaction designers, as a facilitator (Frascara, 2004) for revealing understanding about any lived experience they need to design for.

Graphic design professor Jorge Frascara has a perspective on *Visual Communication* design as a facilitator of behavioural change. This perspective is central to this thesis. Frascara says that *Visual Communication* design generally is "understood as the physical product derived from the activity, but the activity itself is often overlooked. (...) It involves judgment calls, the implementation of knowledge, the generation of new knowledge, and the use of educated intuition and decision-making." It is aimed at visually communicating specific messages "toward having an impact on the public's knowledge, attitudes, or behavior in an intended direction" (Frascara, 2004, pp1-2). Forlizzi and Lebbon (2006) agree with Frascara by stating that in "its most powerful form, [Visual] communication design can inspire a behavioral change in viewers by generating knowledge, taking action, or creating an experience" (p52). By embracing a facilitator position *Visual Communication* can, by placing its visual

1 Graphic design and illustration.

2 The *Visual Communication* design discipline began to lose its influence in the 1990s over the emerging design discipline.

communication techniques within the ideation phase of designing interactions, it can help interaction designers to reveal to themselves, the 'essence' (van Manen, 1990, p78) of any lived experience from a user's point of view. Through engaging in acts of visual interpretation, interaction designers can create their direct understanding of this *essence* of a lived experience (of what users' saw/felt/did during an experience they need to design for).

This is made possible because of *Visual Communication's* established overlapping of existing disciplinary boundaries (see Fig. 1.1), and its history of moving freely across these boundaries.[3] Using a new theoretical framework of an original synthesis of the theories of Hermeneutic Phenomenology with the pragmatic semiotics of C. S. Peirce's Semiosis (1932, 1933), a fresh influence on Interaction Design is created through applying different perspectives and tools, which Human-Computer Interaction (HCI) cannot provide. The author has named this synthesis *hermeneutic-semiosis*. To achieve this within a broader disciplinary boundary of 'user experience design,' this PhD creates a new qualitative methodology called a *Visual Phenomenological Methodology* (**VPM**), which is 'powered' by the synthesis of *hermeneutic-semiosis* to visually communicate what happens in a lived experience, using visual interpretations. So to achieve this, the research question that this PhD will investigate is:

> How can a synthesis of visual communication techniques and Hermeneutic Phenomenology, through Peircean Semiosis, successfully reveal user experience to aid interaction designers?

The *Visual Phenomenological Methodology* places *Visual Communication* at its heart. By using it on their user research, interaction designers can uncover "what users do" rather than what they say they do, as self-generated, phenomenological visual stimuli, to better understand their users to design better interactions for them. David Travis from Userfocus sums up this real issue for interaction designers as, "You might want to believe that users know why they struggle, but they don't. It's not what users say. It's what users do that matters" (Travis, 2014). In using the Visual Phenomenological

3 Some of *Visual Communication* design's early Modernist progenitors influenced how it developed less commercial, and more facilitatory, experimental communicative positions. In the early 20th century, from the manifestos of Constructivism, Futurism, de Stilj, and Bauhaus creatives (such as Rodchenko, Lissitzky and Moholy-Nagy) moved "freely across the boundaries" (Poynor, 2004, p27) of art, culture, society and design.

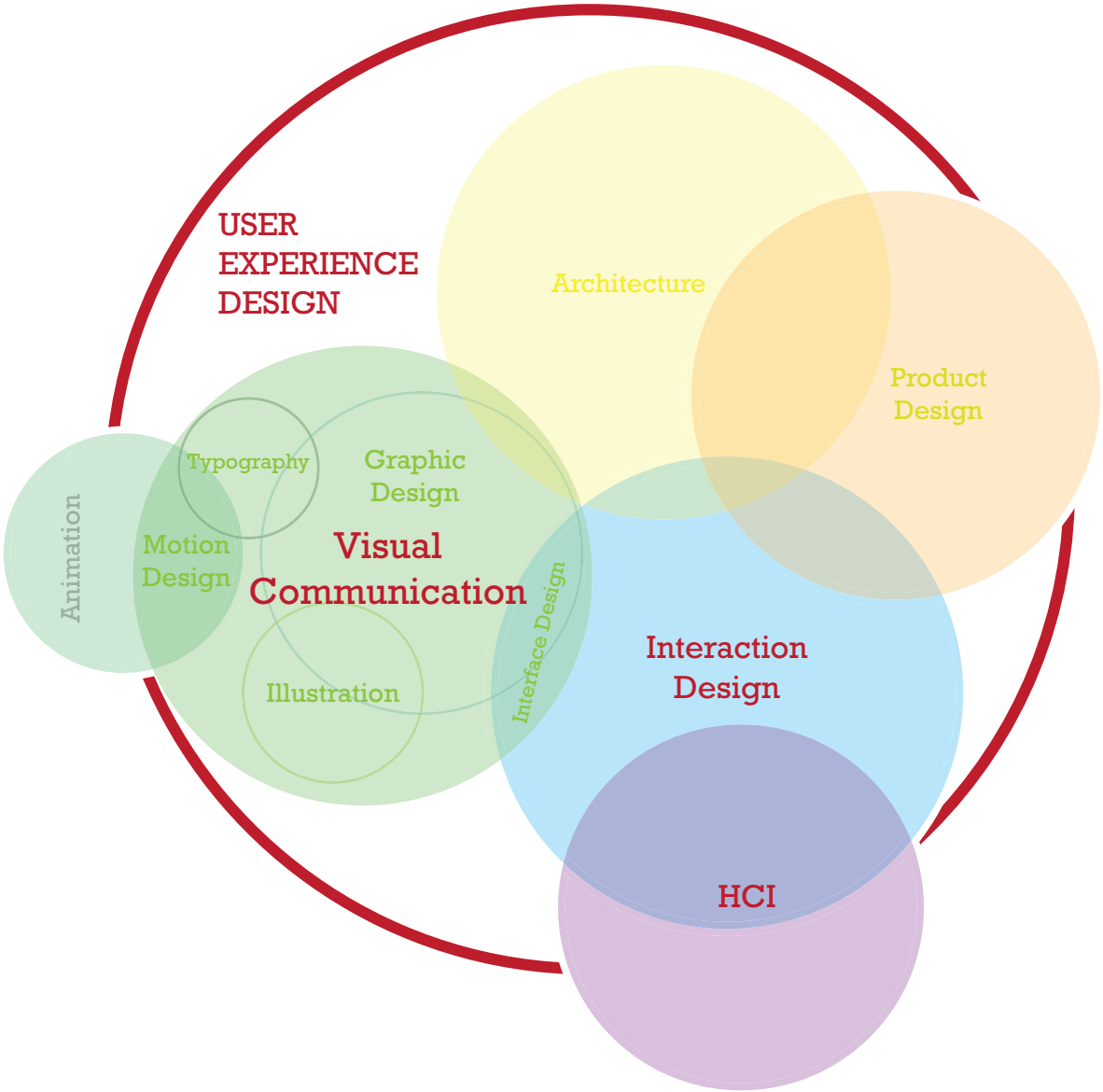


Fig.1.1: Overlapping design disciplinary boundaries.

Methodology, interaction designers reveal to themselves, from a fresh *perspective of proximity* to the "sensory data" (Kolko, 2012), the "structural or thematic aspects" (van Manen, 1990, p78) that give meaning to a lived experience, affecting their own "knowledge, attitudes, and behaviour" (Frascara, 2004, p13). From a Frascaran position, people are proactively involved in the processing of the visually communicated message, and *Visual Communication* creates these communicational situations (Frascara, 2004, p13) as events. In these communicational situations, meaning pragmatically emerges in ***The Receivers*** (a semiotic term for the intended audience - in this context the

interaction designers). These Frascaran communicational situations negate the misconception that *Visual Communication* designers only do the 'aesthetic bit' (the artifice), at the end of long engineering or coding construction phases of designing interactions. These visual interpretations, created by the interaction designers of what is phenomenological revealed from analysing the sensory data, are semiotically structured using Semiosis, utilising the forms of two specific and powerful semiotic Signs. In this way, *Visual Communication* provides a phenomenological methodology for interaction designers to explain "the complexity of their world" (Davis, 2012, p222) through the Visual Phenomenological Methodology. In doing this *Visual Communication* also provides interaction designers "the systems necessary to bring about and manage real change" (*ibid*.).

In the *Visual Communication* literature, there remains an absence of specific phenomenological methodologies that its designers can employ (Barry, 1997; Bowers, 2011, Huck *et al*., 1997; Kenney, 2009; Williams & Newton, 2007). This PhD research addresses this hole in the literature with the Visual Phenomenological Methodology. The connection between Phenomenology and *Visual Communication* has been strengthened only very recently, through the research of Dr. Julia Moszkowicz[4] (2009). Up to then in the *Visual Communication* literature, only Bowers has briefly referred to Phenomenology as a methodology in a single diagram (2011, p5). This diagram lacks any further explanation, and therefore this PhD offers one possible practical phenomenological methodology. Phenomenology is a philosophic and theoretical study of "the things themselves" (Bragg, 2015) within our reality. The hermeneutic form of phenomenology is used to interpret a human lived experience in an unfettered way (van Manen, 1990). From a *Visual Communication* perspective a research methodology based in Hermeneutic Phenomenology provides a theoretical framework to structure how to facilitate

4 Moszkowicz, in her 2009 PhD *Phenomenology and Graphic Design Criticism: A Re-evaluation of Historical Precedents in the Age of New Media*, re-establishes the link between Phenomenology and *Visual Communication* through graphic design criticism. This is complementary to how other design disciplines (such as product, architecture and interior design) have used Phenomenology reflexively to understand spatial-temporal-corporeal relationships between audiences and the designed artefact.

possible behavioural changes.

How the term '*visual communication*' will be referred to in this thesis needs to be established. As can already be seen in this PhD, the author uses two specific forms of the term. The first use is as a noun using *italics* with a capital V and C (*Visual Communication*). This use indicates when the design discipline is *being* directly referenced in this thesis. The second use of the term is as a verb, which references the act of *visual communication* (using illustration and/or graphic design techniques). In the text of this thesis, when identifying the activity of visually communicating some meaning or message, lower-case letters (*visual communication*) are used. By using *Visual Communication* as a noun, a Frascaran position as a proactive facilitator of behavioural change, through the manipulation of text and image, is embraced. Following this introductory chapter there are six further chapters, supported by six appendices. This thesis has been developed as a practice-based doctorate involving participants and interaction designers within three practical projects. These projects will be discussed in more detail in Chapter 3 but in brief they are: Internal | External 2010; The Dynamic Sinsign Project [2013]; and The Visual Circle of Interpretation [2014]. Built from established qualitative ground upwards, the three practical projects helped to test the theory used to develop the *Visual Phenomenological Methodology* throughout the PhD, before it was workshopped with interaction designers.

So to be able to answer the research question successfully through the Visual Phenomenological Methodology, a cohesive and logical academic argument had to be established from a contextual review. Chapter 2 provides this review of cross-disciplinary literature and practice-based outcomes, which helps to ground and develop the methodology. The review is cross-disciplinary, and it reflects this PhD's moving of *Visual Communication's* boundaries in its facilitating of its designed outcomes, in changing behavioural responses in others. The existing *Visual Communication* literature is academically not as

rich, nor as numerous, as other design disciplines.[5] As graphic designer (and critic) Michael Rock bluntly put it in the mid-1990s, "we don't have a couple of centuries' worth" of design books (Rock and Poynor, 1995, pp56-59). Design critic & founder of Eye magazine Rick Poynor takes Rock's point further, *Visual Communication* "as a profession has long had an aversion to theory" (Poynor, 2003, p10). Although Steven Heller (1998), quoting Katherine McCoy,[6] reminds us that *Visual Communication* "is still a young discipline and has had very little theory until recently" (McCoy interviewed in Heller, 1998, p134).

In the current *Visual Communication* literature over the past five years, this perceived aversion to theory has been somewhat negated, with new works such as Davis (2012), Poulin (2012), and Bowers (2011)[7] openly discussing gestalt theory, semiotics, communication and research theoretical methods directly within *Visual Communication* literature. The current research of Moszkowicz (2009) connects Phenomenology and *Visual Communication* in a much clearer manner. The main cross-disciplinary sources that became useful to this thesis were the work of: Frascara, (2004) Barnard (2005), and Bergström (2008) [*Visual Communication*]; Dourish (2004), McCullough (2005), Löwgren and Stolterman (2004), and O'Neill (2008) [Interaction Design]; Harrison *et al.* (2007), Lim *et al.* (2007), and Petersen *et al.* (2004) [HCI]; Heidegger (2013a [1927], and 2013b [1919-20]); Ihde (2012), Moustakas (1994), and van Manen (1990) [Phenomenology]; and Peirce (1932, 1933), and Jappy (2013) [Semiosis]. The *Visual Phenomenological Methodology* was developed from these sources, but it was also supported by many additional ideas from both academic literature sources and practice-based outcomes. These will also be featured in this contextual review.

Following on from the contextual review, Chapter 3 provides an overview

5 There have been books and articles written by *Visual Communication* masters and graphic design critics such as Jan Tschichold, Steven Heller, Philip Meggs and Alston Purvis, Michael Bierut and Rick Poynor. With the advent of interactivity and new media in the 1990s the literature that encompasses the addition of a user (a human in the reception of *Visual Communication* beyond a passive consumer as an active participant in the design) has not been as clear as the more traditional sources.

6 McCoy is the joint-founder of the Graphic Arts degree programme in the 1990s at the Cranbook Academy of Art in Michigan.

7 There are other titles that discuss each theory in more depth, but these are specifically written in the context of the theory rather than from a direct *Visual Communication* context.

of the three practical projects, which were devised, implemented and managed by the author, as part of this practice-based PhD. The first project, Internal | External 2010, required the ethical recruitment of participants, and a research facility. The second project, The Dynamic Sinsign Project focused more on problem solving using visual communication techniques. The final project, The Visual Circle of Interpretation continued this problem solving using visual communication techniques, and then developed the full *Visual Phenomenological Methodology*. This was disseminated to interaction designers, and workshopped with them in the form of method cards in this final project. In developing the *Visual Phenomenological Methodology* across all of these three projects, *Visual Communication* remained at the core of the synthesis between theory and practice.

The visual interpretation outputs and empirical data from these experiments will be discussed in Chapter 4, which provide a richer understanding of the lived experience, created for interaction designers by themselves[8] that existing personas or mental models cannot provide. These outputs from the *Visual Phenomenological Methodology*, demonstrates how *Visual Communication* can provide interaction designers with new tools, to visually stimulate fresh design solutions, far earlier in the Interaction Design process. This is because it is built on *Visual Communication's* "grammar of contrasts" (Lupton and Miller, 1999, p64), that help communicate meaning of lived experiences in a visual way, through the manipulation of image, colour, form, texture, line, weight, typography, and composition. This is synthesised into the *hermeneutic-semiosis*, so that interaction designers can empathically engage in understanding the *essence* of users' behaviour changes, and emotional engagements, when creating their visually interpretations.

The results of these projects will be discussed in Chapter 5, before the full *Visual Phenomenological Methodology* will be explained (in detail with visual examples) in Chapter 6. The projects' outcomes from the collected sensory

8 Due to the pragmatic act of creating visual interpretations of moments within a lived experience, interaction designers help themselves to see their users in a new light, through extracting fresh understanding and meaning from their user research, which had not already been revealed through existing research methods.

data analysed from user research, visually communicated what the users did, rather than what they said they did. This *visual communication* of the meaning of users' lived experience was effectively revealed, through employing a *visual hermeneutic circle*. If the *hermeneutic-semiosis* theoretically powers the Visual Phenomenological Methodology, this adaptation of Heidegger's *hermeneutic circle* of interpretation (2013a [1927]) was its engine. It structured how the visual interpretations would lead interaction designers to reveal to themselves, the *essence* of a lived experience, through synthesising Hermeneutic Phenomenology with Semiosis. This was made possible with the philosophic 'glue' of Pragmatism. Peirce's form of semiotics is concerned with Semiosis (or sign-action) that shapes the visual language used in visually interpreting an experience, thus reinforcing the link back to *Visual Communication*. Through adapting the structure of a *hermeneutic circle* of interpretation into the Visual Phenomenological Methodology, interaction designers are able to visually reveal (or 'see') what actually happens within an interaction, by montaging images to represent what users see/feel/do.

This PhD thesis, as an experiment in repositioning *Visual Communication* to explore how it can become a fresh influence on Interaction Design, shows how by its moving across disciplinary boundaries it is possible to synthesise theory and practice in a fresh way. In doing so it places *Visual Communication* at the heart of a new qualitative methodology, demonstrating the *Visual Phenomenological Methodology* as an original contribution to knowledge. So in Chapter 7, the potential industry use of applying all or parts of the methodology in designing better interactions will also be examined, as well as suggestions for post-doctoral work within commercial settings. This PhD's final chapter will conclude by restating how this thesis does make a positive addition to *Visual Communication's* academic literature. Any extra information that is pertinent to this PhD, but not directly included in the main thrust of the thesis, will be documented in the six appendices that follow the bibliography.

In Appendix A, the entire *Visual Communication* outputs that were generated as part of this PhD are catalogued (see separate hardback book or CD). Appendix B, then provides more detail on how Moustakas' own adaptation of van Kaam's phenomenological methodology, was further adapted by the author into a hermeneutic model. Appendices C and D then look deeper into Peirce's Semiosis and *Visual Communication*. Appendix C maps out each of Peirce's ten semiotic Signs with *Visual Communication* examples, while Appendix D discusses how Signs 4 and 9 visually communicate when visually interpreting. Appendix E features peer review feedback on unpublished academic papers, which were crucial to developing a robust *hermeneutic-semiosis*. This appendix will also feature workshop feedback from the interaction designers. Appendix F will reprint four published academic papers, which were instrumental in developing this PhD thesis. The following chapter will begin this thesis with the contextual review of cross-disciplinary literature and practice-based outcomes.

Chapter 2: Contextual Review

2.1 Visual Communication

In this contextual review of the discipline of Visual Communication, first it is important to discuss its early development under the term of Graphic Design. In doing so, the progenitors of the discipline can then also be reviewed, to establish that its designers were more than slaves to commercialism. They were visual communicators, first and foremost. They expanded its reach across disciplinary boundaries into facilitating behavioural change in the viewer. This idea of a Visual Communication designer as being a facilitator is explored, taking the discipline beyond mere visual design. To do this aesthetics, and the perspectives of intention/proximity/reception, are examined as a communicational situation that relies on the interpretation of socio-cultural signifiers. This is explored as an interactive process, based on the reception of the design, that behavioural change can be facilitated. This section on Visual Communication includes visual examples, and also raises areas of connection with Interaction Design, and Human-Computer Interaction (HCI).

2.1.1 Visual Communication as a Design Discipline

It was American typographer and printer William A. Dwiggins in 1922 who coined the term Graphic Design, "to confer a loftier professional standing" (Heller, 2006, p10) on a group of visual communicators. He elevated the skills of typographers, commercial artists and designers working in type foundries, commercial art studios and print shops into a profession. But in doing so, it also cemented them into a definition that was rooted in the orthodoxy of a commercial print world. This position, filtered through a philosophy of 'form

follows function,' was perceived to be "thoroughly implicated" in consumerism (Crowley, 2004, p182), and subjugated many mainstream graphic designers of the 20th century into thinking that their work could only serve consumerism.

But the discipline's long history reveals, there were other nascent designers in the early 20th century who knew no bounds, when it came to communicating an intended message, by embracing all forms of media (Meggs and Purvis, 2011; Noble and Bestley, 2005; Helfand, 2001; Hollis, 2001). Dwiggins' ambition of professional recognition would always go beyond the desires of mere consumerism. The typographer Jan Tschichold strove for emotional clarity through his typography, to aid its visual communication in a clear and unambiguous way. In his 1928 essay on *New Typography* (six years after Dwiggins coined graphic design as a term), he urged that, "a fresh and original intellectual approach is needed [to achieve communication], avoiding all standard solutions" (Tschichold, 2009, p38). Therefore the design discipline's roots were just as much in the Modernist manifestos of *Contructivism*, *Futurism*, *de Stilj*, and *Bauhaus*, as they were in commercial work. They fundamentally facilitated successful transmission of meaning, through the manipulation of typography and image, in ways that definitely went beyond consumerism (see Fig. 2.1).

As graphic design critic Rick Poynor pointed out at the end of the 20th century, the term 'graphic design' had become "too rigid" (Poynor, 1999, p28) to define an entire design discipline, which was focused on communicating to an audience through visual means. This was partly due to several factors. Firstly, over the 20th century outcomes of 'graphic design' were so "deeply ingrained in the texture of daily life that it is taken for granted" (Crowley, 2004, p182). Secondly, with the 1980s desktop publishing explosion, the availability of new design software led untrained people to believe they could do the job of a 'graphic' designer. Thus devaluing the professional standing that Dwiggins had originally raised (Heller, 2006, p10). Thirdly, the term graphic design placed a focus only on one aspect of the discipline (falsely understood

Fig. 2.1: Some Modernist progenitors of *Visual Communication*.

by the layperson as designing the 'graphic'), that eclipses those who practice illustration, typography, motion or interaction design. Fourthly, the term "fails to suggest the expanded possibilities of contemporary visual culture" (Poynor, 1999, p28) beyond consumerism that designers, illustrators and typographers actively embrace, namely communicating ideas through visual means.

Thankfully, since the late 1990s the status of 'graphic' design has been undergoing re- evaluation, due to the expanding possibilities of the digital world, in creating design opportunities away from print. So much that now in the 21st century, Professor Jorge Frascara argues that *Visual Communication* design[1] is a more embracing, and purer term for the discipline, than 'graphic' design (2004). This re-evaluation has its roots in the advent of interaction design. In a much distributed diagram over the last decade, User Experience designer Jesse James Garrett of Adaptive Path, summarises how graphic designers contribute to the design of interactions as 'visual design' (see Fig. 2.2). This he states is, "the 'look' in 'look-and-feel'" of a design (2000), at the end of the entire interaction design process. But it is inaccurate in its

1 Hollis made this connection back in 1994 and again in 2001 (2001, p7), and Barnard drew on Hollis' use of the term 'visual communication' in his 2005 book *Graphic Design as Communication* to help demarcate design from art (p11).

reduction to just the 'graphic,' of what *Visual Communication* designers actually contribute. The designed visual communication outcomes are not simply 'graphics' in a 'visual design' sense. In using that term, it gives the impression that *Visual Communication* designers are merely "decorationists, elitists or servants of the consumerist machine" (Laurel, 2003, p16), to just 'skin code' or "do the aesthetic bit" to pretty up the functional elements of the designed interaction. It suggests that *Visual Communication* designers' work is "frivolous or shallow" (O'Reilly, 2004, p221), just to be employed once all the 'hard work' has been done. The term 'visual design' as it is used, is a reduction of what designers do to visually communicate complexity of meaning. But what *Visual Communication* designers can contribute to the design of interactions is more than this. As early as 2002, Forlizzi and Lebbon were advocating a more inclusive role that was in opposition to visual 'designism'. They were discussing, in the context of facilitators of behavioural change, that *Visual Communication* designers had empowerment as "an agent of influence," through embracing user-centred design thinking:

> "Recently, the inclusion of user-centered, interdisciplinary methodologies in [Visual] communication design processes has helped to find appropriate ways to reach today's viewers. User-centered methods allow communication designers to create the opportunity for a shared dialogue with their viewers, and more important, to create the opportunity for behavioral and social change. When designer and viewer are actively involved in a shared dialogue, both become participants in the creation and interpretation of the visual message. As a result, the designer is empowered, shifting from a decorator of messages to an agent of influence on the social implications of delivering a visual dialogue" (Forlizzi and Lebbon, 2006, p52).

Frascara believes that it "would be a fundamental error to believe that in design one can deal with the form independent of content, or with sensorial, independent of the cognitive and the emotional" (2004, p65). The outcomes of *Visual Communication*'s design process focus on meaning, and its communication through the manipulation of the visual relationship between typography and image. Frascara goes as far as saying, "it is fundamentally about performance" of the designed visual communication outcome to communicate its intended message (*ibid*. p12). The sender of the message (most cases a client), operates from a '*perspective of intention*.' The messenger

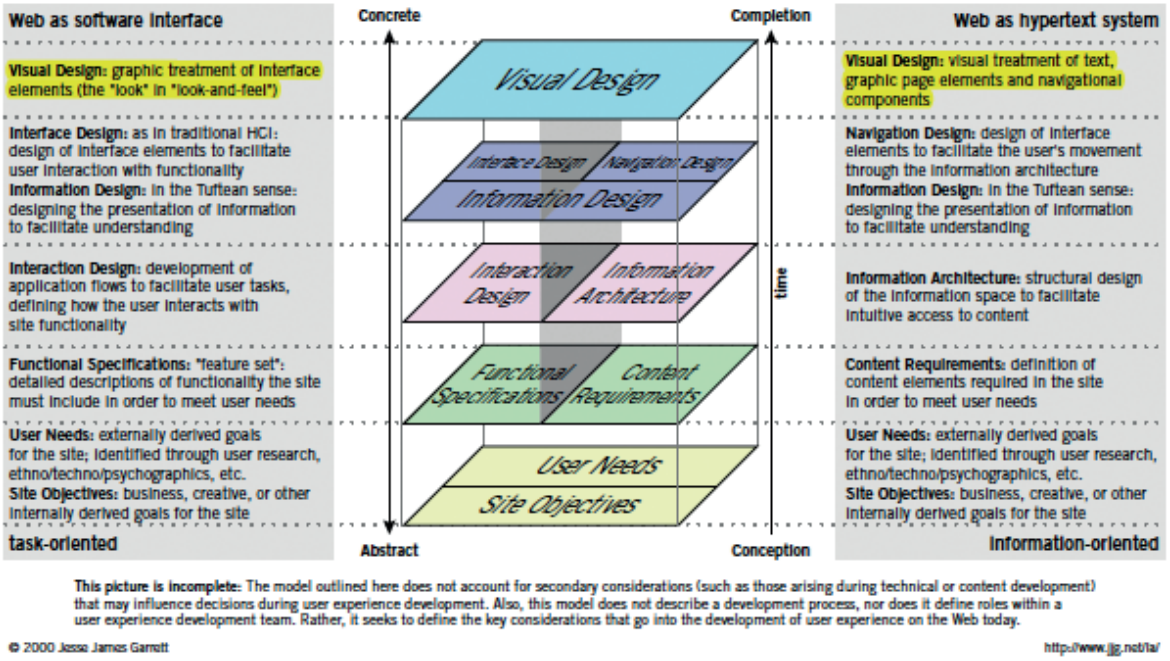


Fig. 2.2: 'Visual Design' as defined by Jesse James Garrett.

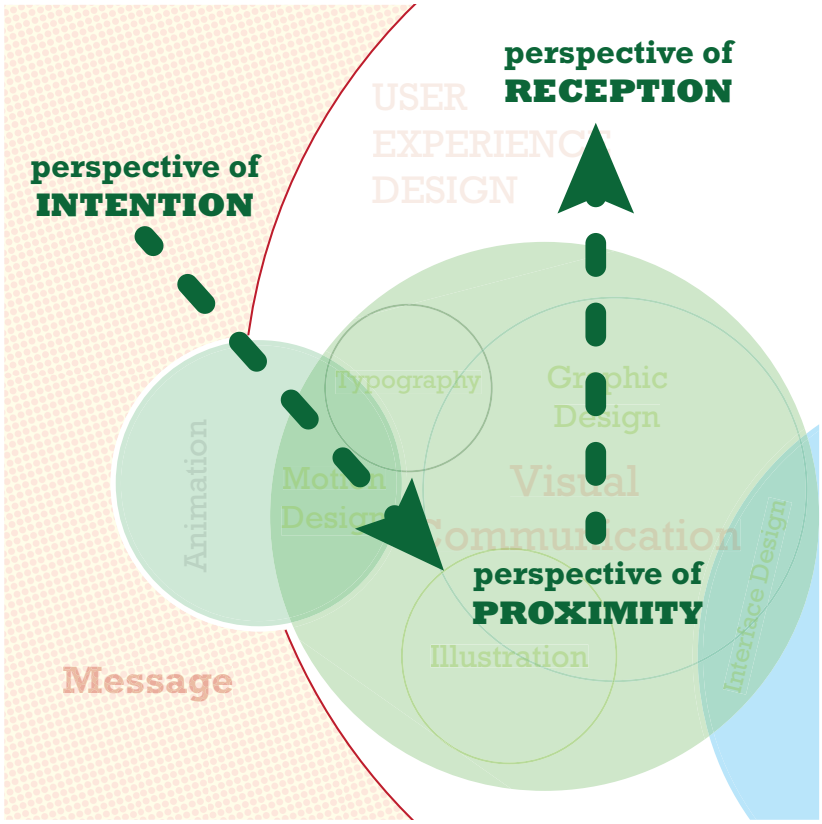


Fig. 2.3: Perspectives of intention, proximity and reception.

(the designer) operates from a '*perspective of proximity*' (see Fig. 2.3). Finally, ***The Receiver*** reacts interpretively from a '*perspective of reception*,' using their feelings and perception in reconstructing ***The Message*** from the visual *information* (Bergström, 2008, pp32-33).

Rather than just the creation of graphic forms [outcomes], a disciplinary term of *Visual Communication* now places the emphasis not just upon the method [design], but also on the objective [communication] and how it is communicated through its use of media [visual] (Frascara, 2004, p4). Frascara's *Visual Communication* discipline argument was holistic, as under an embracing umbrella term, it brought together graphic designers, illustrators, typographers, interactive designers and motion designers. Barnard presents the discipline as a "signifying system, within a much larger system" as a visual constructor for how a "society constructs and communicates meaning" for itself (2005, p67). Frascara argues that *Visual Communication* designers make "substantial contributions to the clarity, effectiveness, beauty, and economic viability" of communication (Frascara, 2004, p85). Unlike Dwiggins' term eighty years before, *Visual Communication* focused itself upon the reality of what all these designers actually do. They create visual outcomes that signify meaning either through static printed type and image layouts, or through motion, or to aid interaction with visual calls to action that structure the functioning of an interface. Davis argues, that this empowerment as facilitator, *Visual Communication* designers now found themselves within the new digital age. This mapped to design strategist Hugh Dubberly's new design paradigm, that followed an organic system that "built agreement" of communicated meaning (Davis, 2012, pp231-232).

With the addition of motion graphic design to the outputs of *Visual Communication*, by the time the 21st century dawned, what was understood as graphic design was now "a discipline on the move" (O'Reilly, 2004, p231), repositioning itself, and losing its identity within working with interaction (see Table 2A). As a facilitator of the communication of meaning through

visuals, *Visual Communication*'s outcomes could be static, or in motion, or fully interactive (see Fig. 2.4). What remained constant though was that meaning was still understood semiologically, in a *socio-cultural* context, as "no example of [*Visual Communication*] design has ever been produced outside of a society, a culture and an economy" (Barnard, 2005, p55). *Visual Communication* now, as the disciplinary term, also allowed its designers to call themselves by whatever job title they desired that fitted their expertise, while still remaining visual communicators, as long as ***The Receiver*** was successfully facilitated toward constructing ***The Message***.

	Authors
Visual Design	Bardzell, 2009; Fogarty *et al*., 2001; Hashim *et al*., 2009; Heller, D., 2005; Kolko, 2010; Lim *et al*., 2007.
Communication Design	Ahmed *et al*., 2009; Saffer, 2006.
Interface Design	Ahmed *et al*., 2009; Baljko & Tenhaaf, 2008; Bertelsen & Pold, 2004; Harrison *et al*., 2007; Hashim *et al*., 2009; Lim *et al*., 2007; Udsen & Jorgensen, 2005.
Web Design	Bertelsen & Pold, 2004; Pannofini, 2012; Tractinsky, 2004.
Digital Design	Pannofini, 2012
Graphic Design	Gajendar, 2008; Hashim *et al*., 2009; Kolko, 2010; Lim *et al*., 2007; Löwgren, 2007; Lundgren, 2009; McCullough, 2005; Motamedi, 2007; Pannofini, 2012; Tractinsky, 2004.

Table 2a: When is a graphic designer a graphic designer? Conflicting terms in Interaction Design and HCI literature that equate to the same design specialism - *Visual Communication*.

2.1.2 How Visual Communication Visually Communicates

The outcomes that many may identify as 'graphic design,' or 'illustration' go beyond the tired (almost cliché) examples of advertising posters, selling something or a logo on letterheaded paper. Visual communicators manipulate typography and images to visually create discourse and emotional engagement, with the designed outcome through a semiotic process, where hierarchy, layout, colour, form, texture, line, weight and composition combine (de Soto, 2013; Hagen and Golombisky, 2013; Ward, 2012; Elam, 2011). From the early

progenitors who knew no bounds, the discipline was "open," "diverse," "inclusive" and "inventive" (Poynor, 2004), constantly challenging its own established 'rules'.

These visual communication 'rules' provided a beneficial tension of structured clarity for inventive expression, which liberated any subjective points of view of the work "as an enhanced expression of fact — not at the expense of it" (Helfand, 2001, p62). The visual language it developed used "a 'grammar' of contrasts [instability/balance, asymmetry/symmetry, soft/hard, heavy/light]" (Lupton and Miller, 1999, p64), through a semiotic process of visual signifiers to engage emotional engagement and discourse. This semiological relationship forms part of the internal variables (see Fig. 2.5) that a designer manipulates, together with the "combination of visual 'movement,' balance and delineation in a layout, the dramatic and subtle use of type, colour, space, line and image" (Macdonald, 2003, p90).

Helfland reminds us that the Modernist designer Paul Rand saw this process as poetry, a "carefully orchestrated vocabulary of simple form, specific function, and symbolic content," that plays with "rhythm, contrast, balance, proportion, repetition, harmony, and scale," to visually communicate (Helfand, 2001, p142). This leads the person, using the design outcome, to a signified communication of the intended message. This process of manipulating typography and image is contextualised within specific *socio-cultural* references, for it to be visually communicated, and semiotically understood by its intended audience (see Fig. 2.6). After all "nothing counts more than what the reader understands and how they interact with the design" (Baldwin & Roberts, 2006, p38), the design affects the "knowledge, attitudes, and behaviour" (Frascara, 2004, p13) of each person viewing it.

This visual perception of the audience is "pervaded by [their] attitudes, values and experiences" (Bergström, 2008, p80), affecting their ability to interpret the intended message, "because our nature as social beings is based on the ways in which we act and interact, in real, all the time" (Dourish, 2004,

Fig. 2.4: Various examples of Visual Communication's outcomes.

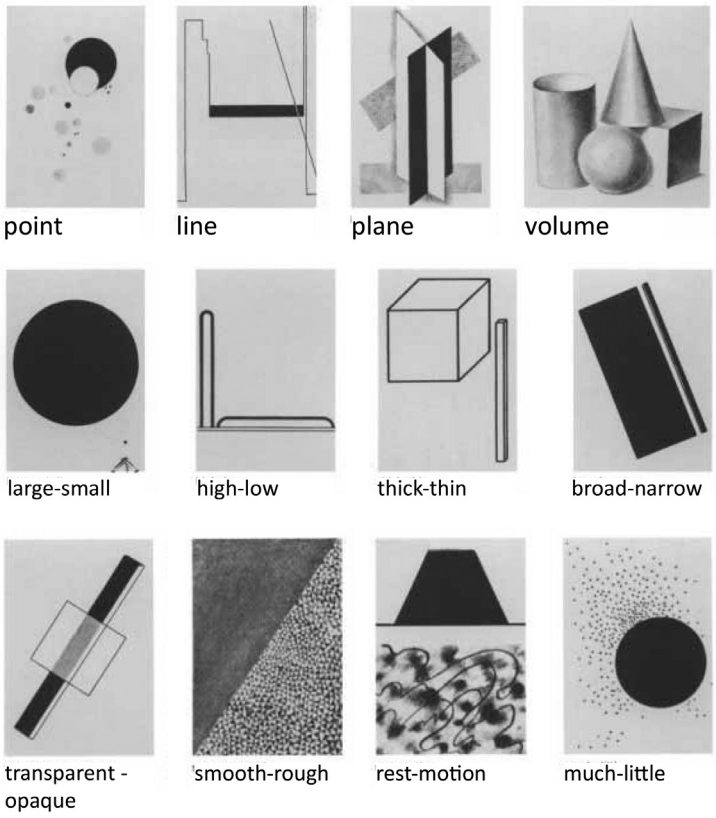


Fig. 2.5: Some visual communication 'rules'

p18). *Visual Communication* design outcomes cannot be truly understood without a context (see Fig. 2.7), which includes the "social, political, physical, cultural, and commercial contexts in which it operates" (Frascara, 2004, p86). The designed visual communication outcome operates within, "itself, the medium, the place and the time" (Bergstrom, 2008, p82). Dourish argues that people's "social actions are ones that we jointly construct as we go along. A conversation between two people is shaped in response to the moment rather than abstractly planned" (Dourish, 2004, p18). Frascara insists that there are three essential functions of any form of visual communication of a message. First, a *Visual Communication* outcome needs to attract audience attention. Secondly, it needs to retain that attention, so that thirdly it can begin to communicate its intended message. Importantly Frascara reminds us that, "aesthetics plays an important role in all three [functions], but it should never become a distraction" (2004, p85) from the act of communication. Bergström's three perspectives of intention, proximity and reception (see Fig. 2.4) of a *Visual Communication* outcome, contextualise and explain how the aesthetic helps to convey the intended communication.

The Intention of ***The Message***, and its reception, are dependent upon the proximity of how it is designed. This is what Frascara defines as a "communicational situation," within which the design impacts on the knowledge, attitudes and behaviour of the person viewing it [reception] (Frascara, 2004, p13). As Dourish states our world is socially constructed and is intertwined with the physical world, with the elements that we experience daily gaining "meaning from the network of social interactions in which they figure" (Dourish, 2004, p99). For ***The Intention*** of the design to be received successfully, (what needs to be communicated and why), the designer's proximity to the design outcome shapes the semiotic signifiers a person will interpret to understand what's visually communicated, from the audience's own *perspective of reception* (Bergström, 2008, pp32-33). Depending upon ***The Intention*** and the semiological manipulation in the design, the understanding

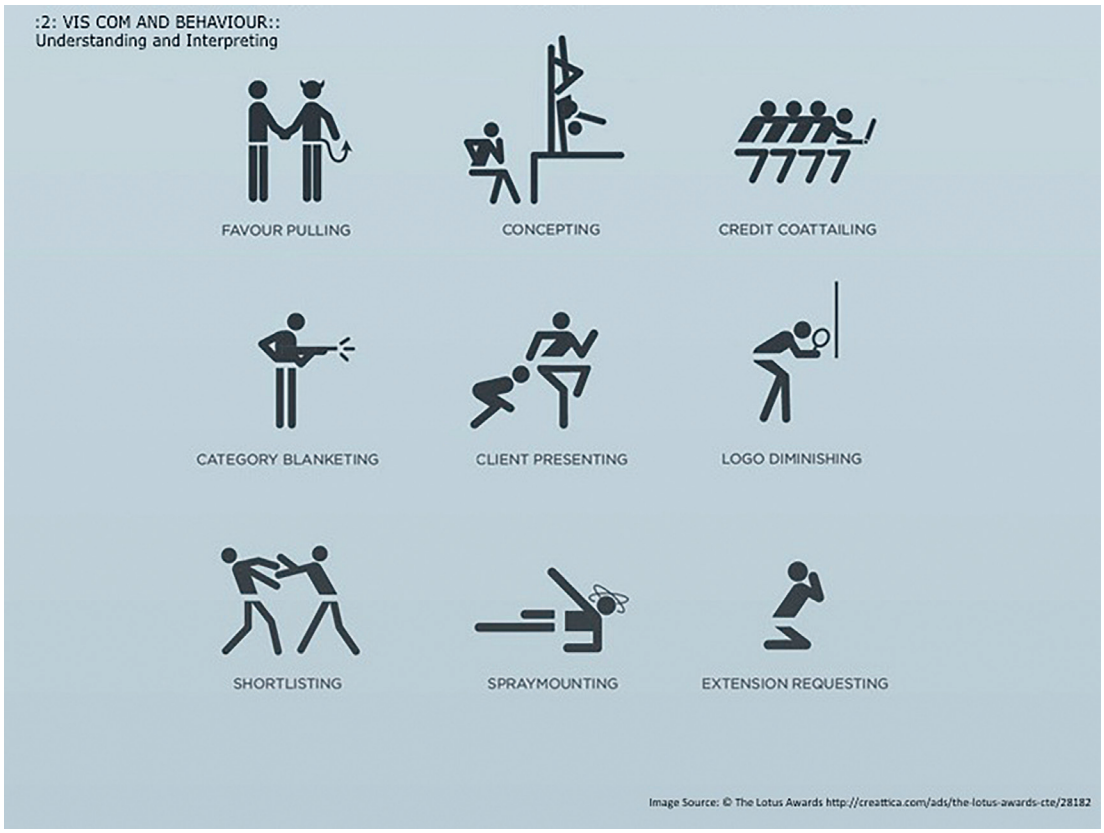


Fig. 2.6: An example of a visual vocabulary in Visual Communiocation design.

Fig. 2.7: *Visual Communication* in the context of picture processing - (a) the final montaged design, (b) the components that form the final montaged design According to the studies of Potter and Levy (1969) and Potter (1976) the speed of recognition and memory of elements is dependent on the configur

† SPOEHR, K.T. and LEHMKUHLE, S.T. (1982) Visual *Information* Processing. San Francisco: Freeman, cited in (DAVIS, 2012, pp68-69).

of it can be constructed (see Fig. 2.8) with a denotational and/or connotational meaning (Barnard, 2005, p25, p28).

There is a distinction to be drawn between the "nature of the space," in which the act of visual communication unfolds, and "the place that is occupied" in interpreting, and understanding what is communicated. Dourish describes such a distinction as existing "between the physical and the social" (Dourish, 2004, p89). Most people in an audience do not think about "a designer's [proximity] being involved with everything they come into contact with" (Ward, 2012, p142). In fact, they do care about what the design lets them achieve (Frascara's 'performance' argument). This all depends on the original intention, and the visual communicator communicates this intention, through an interpretive relationship with the person viewing it. This Frascara says, happens within the conceptual space of a communicational situation as a communicational event (Frascara, 2004, p13). This conceptual space, between a person and a designed outcome, "is at once physical, cognitive, and social" that, "resonates immediately but yet continues to inform later (...) that relies heavily on a state of emotional awareness" (Kolko, 2010, p104). Space is fundamental to our existence in the world around us, so that it "permeates the way we think" (Dourish, 2004, p88). It is within this existential space that a communicational situation arises.

A designer will certainly frame immediate denotational meanings into their design outcomes. This uses culturally specific knowledge, but it only requires a low-level understanding of cultural references from the viewer (Baker cited in Barnard, 2005, p36). Added to this are more subtle dynamic connotational meanings, which are constructed semiotically. This stimulates the "perceptual, emotional, and cognitive processes to be followed by the viewer" (Frascara, 2004, p65), to construct a meaning from the associations from the "perceptual vernacular" (O'Reilly, 2004, p230) of the viewer. By manipulating the "words, images, objects, and customs [that] participate in the culturally and historically determined meaning that characterizes verbal language" (Lupton and Miller,

1999, p65), the reading of the designed outcome attracts and informs the viewer "at the same time as its persuasive function" (Barnard, 2005, pp16-17). *Visual Communication* performs these functions at the same time (see Fig. 2.9).

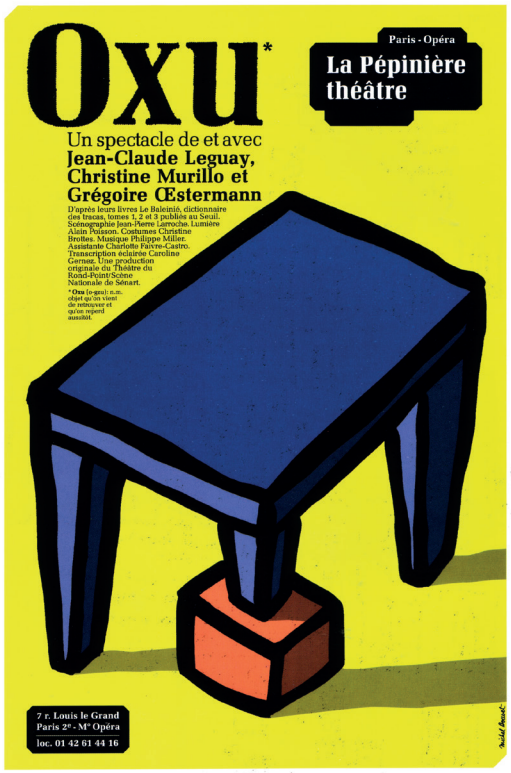


Fig. 2.8: Forms of visually communicating using both denotational and connotational meaning – the initial interpretation shows a broken table (denotational) but as the poster is for a play the meaning of the broken table is symbolic of "life's daily inconveniences" (Skolos and Wedell, 2012, pp60-69).

Fig. 2.9: Example of a designed outcome that at the same time attracts and informs the viewer.

2.1.3 Moving Across Boundaries

To Frascara, Forlizzi, Lebbon, and Davis designers, within *Visual Communication*, are more than mere visual decorators — creators of the '*aesthetics of surface*,' but facilitators of behavioural change (Frascara, 2004, p19), as its designed graphic outcomes can "adopt a new belief or change behavior" in its audiences (Forlizzi and Lebbon, 2006, p54). There is an interactive element within *Visual Communication*, between the communicated message and the viewer, over a period of time (Frascara, 2004, p13). This duration of time can be instantaneous, or emergent, and to understand the nature of how

it works it becomes an ontological issue around the nature of interaction. Two theoretical frameworks within which this will be ontologically explored later in this review will first focus on the existentialism of Martin Heidegger's Hermeneutic Phenomenology, before being grounded into a practical application as a methodology guided by the work of Ihde, Moustakas, van Manen, and influenced by the Pragmatism of Dewey and synthesised with the Semiosis of Pearce.

But first it is important to explore the modern legacy of the Modernist progenitors from the 1920s and 1930s of *Visual Communication*, such as Rodchenko, El Lissitzky and Moholy-Nagy. They had naturally "moved freely across the boundaries" of what was understood as 'graphic design' (see Fig. 2.10), before "more professionally minded [design] generations attempted to cement in place" (Poynor, 2004, p27). It is true that in the 1990s 'graphic designers' had been slow to develop their influence on the design of interactions, and this meant that, "individuals from other disciplines and backgrounds had plenty of opportunity to influence the field" (Bruinsma and van der Meulen, 2003). Computer scientists, cognitive psychologists and industrial designers "came to [interaction design] with a less restricted view of its boundaries or possibilities than graphic designers" (Macdonald, 2004a) did at the time.

By the 1990s, multimedia did offer new opportunities for 'graphic designers' to expand their outputs that challenged their print-based design thinking. The new design thinking meant accepting a new mind-set towards deepening their knowledge of human factors. The skill of the visual communicator to visually communicate, is in the control of the layout and design elements, but with interactivity they had to learn to share control with the code, browsers and ultimately a 'user.' But in doing so they somehow became relegated to just the 'visual design.' As has been reviewed earlier the term 'visual design' negatively moves the visual communicator to the end of any engineering or construction process, and reducing their role to 'just doing' the "graphic treatment of interface elements (the 'look' in 'look-and-feel')" (Garrett, 2000).

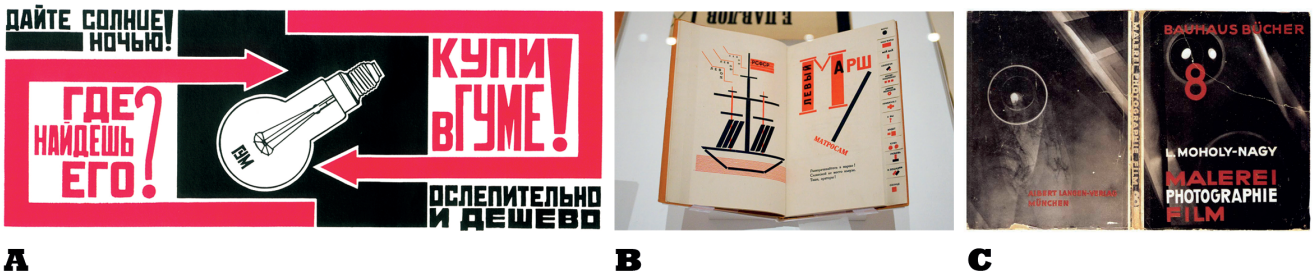


Fig. 2.10: Example of early progenitors moving across disciplinary boundaries – (a) Rodchenko [1924], (b) El Lissitzky [1923], (c) Moholy-Nagy [1925].

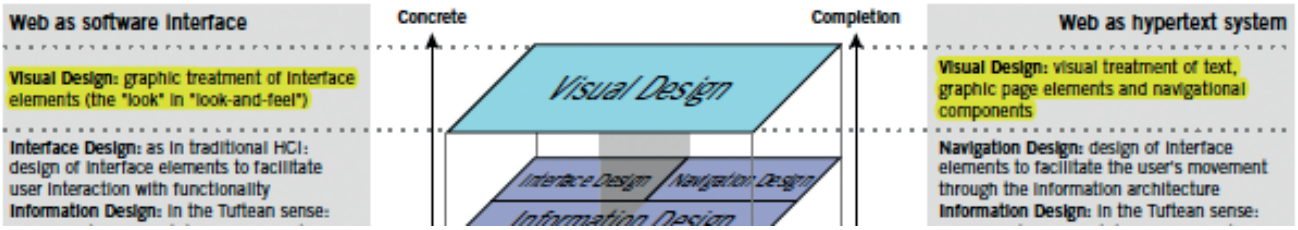


Fig. 2.11: Just "doing the aesthetic bit."

This relegation was nothing more than artifice (see Fig. 2.11).

The positive power of *Visual Communication* comes throughout the process of designing any interaction. It is more than 'skinning code,' and "emphasizes the human side of technology" (Kolko, 2010, pp11-13), presenting interactive opportunities within an "*aesthetics of use*" (Dunne, 1999), where aesthetic value is culturally situated. The *Visual Communication* designer, as a facilitator, steps into any communicational situation, and "builds consensus around ideas that continue to evolve under changing conditions-solutions are 'good enough' for the current state of things but 'adaptable' to new, unpredictable circumstances" (Davis, 2012, p232).

This *socio-cultural* context itself does not "induce actions so much as shape perceptual selectivity" (McCullough, 2005, p34). This perceptual selectivity is manipulated in the visual communication of calls to action, through the semiotic interpretive communication between ***Senders*** and ***Receivers***. This then means that the interpretation of the meaning behind any calls to action, "is not separable from the interaction of communication" (Barnard 2005, p25). Frascara reminds us that the computer, or new media, do not own 'interaction.'

Interaction is not communication, and communication is not simply interaction:

> "Interaction is our human way of dealing with things and with information. Interaction is central to communication. We must forget the old ideas of "transmitter" and "receiver": Real people do not receive *information*. For stimuli to become information, one has to actively interpret, through a variety of actions, whatever one is confronting. To live is to interact. The computer world does not own the function" (2004, p173).

Barnard argues that semiological communication takes place through evoking a cognitive and emotional interpretive response in the person, through a visual grammar of Signs with culturally agreed meaning (see Fig. 2.12). This form of communication is not 'passive,' but is designed to facilitate the proactiveness of the audience in interpreting the meaning (Frascara, 2004, pp71,73; Forlizzi and Lebbon, 2004, pp52-53). Therefore, the aesthetics of the designed graphic outcome, communicating interactive choices, was not mere decorative visual fetishisation. It is more than an aesthetic of form or surface; it engages an embodied interaction in order to make an interpretation. How this embodiment manifests itself, is first enabled through the aesthetic utilised in the designed graphic outcomes.

The aesthetics in the communication attracts and retains attention of the audience (users). The possible action for the audience that facilitates action, works from an experiential grounding that is based on the reception of the design. This new ground of reception is interpretive, involving the audience's cognitive and emotional responses in a translation in each person, into tangible behavioural changes depending upon the *socio-cultural* contexts (see Fig. 2.13). In doing so, each individual develops a relationship "not only with ***The Message*** but also with the source" of the communication (Frascara, 2004, p73).

This contextual review section discussed the discipline of Visual Communication, from its early development both from Dwiggins' commercial Graphic Design (Heller, 2006), to Frascara's argument (2007) of it as a facilitator of behavioural change in the viewer. This idea of a Visual Communication

Fig. 2.12: An example of the visual grammar of Signs with culturally agreed meaning – Here the visual grammar is dependent on both a context (ticket barrier gates) and the recognition of politicians from the left and right of the political spectrum. This Social Economy Alliance 2014 campaign was targeted at Westminster MPs leaving the Westminster Tube station and so used a specific visual grammar to attract and maintain the primary audience's attention.

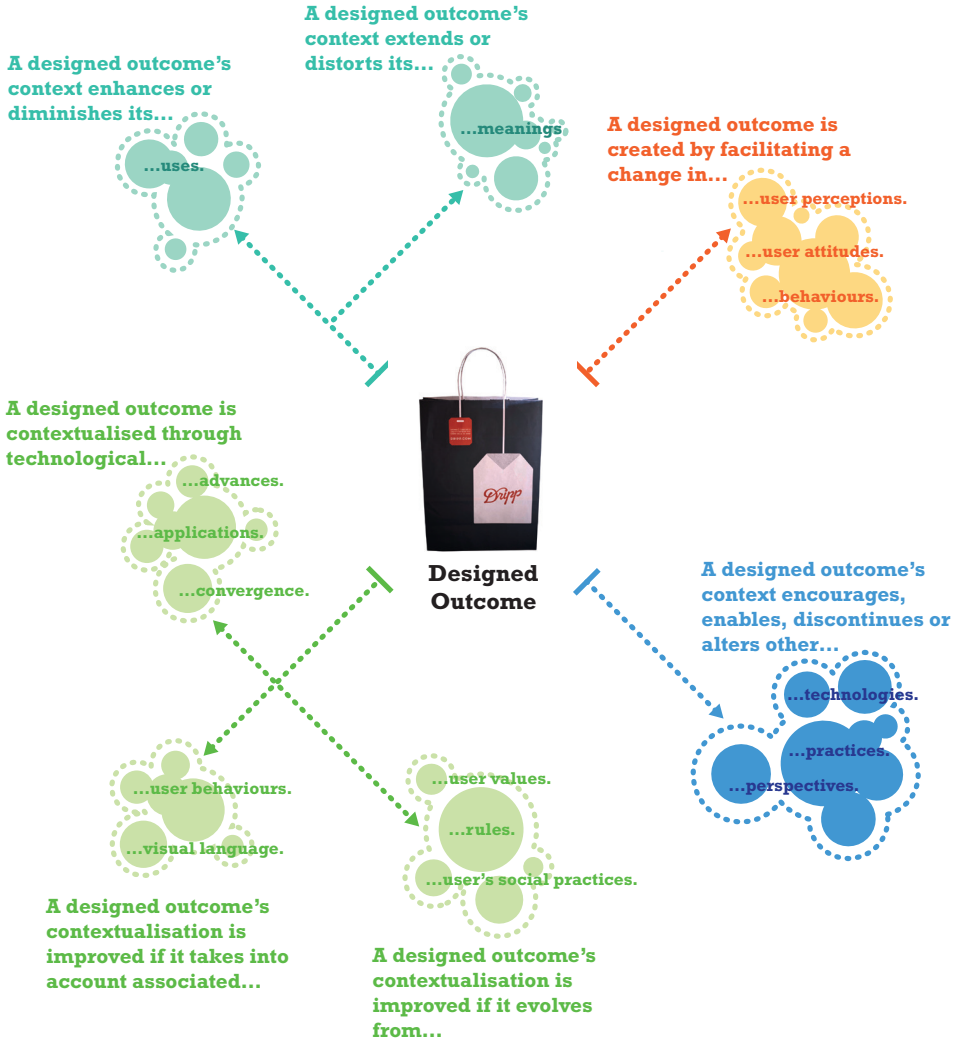


Fig. 2.13: An experiential grounding that is based on the reception of the *Visual Communication* design outcome – This diagram is adapted from the Concept Map of Object Context in Davis' book Graphic Design Theory (2012, p223).

designer as being a facilitator (Frascara, 2004; Forlizzi and Lebbon, 2006; and Davis, 2012), takes the discipline's remit beyond just visual design (Garrett, 2000) of the 'aesthetic bit.' Aesthetics is important to a viewer's perspective of reception (Bergström, 2008) in a communicational situation, but so is the interpretation of socio-cultural signifiers to understand the intention of the communication (Frascara, 2004). This is an interactive process, which built agreement of communicated meaning (Davis, 2012) through its interplay between text and image (Helfand, 2001). The review revealed a connection to Dourish (2004) with how "we act and interact, in real, all the time." In order to explore this facilitation in more detail it is now important to briefly review Interaction Design as a discipline, and how Human-Computer Interaction (HCI) exerted a utilitarian and functionalist influence on it. Then it is crucial to explore how HCI embraced pragmatist understanding of the aesthetic, before exploring HCI's influence of understanding interaction within a situated phenomenological matrix.

2.2 Interaction Design

Following on from a review of Visual Communication, it is now time to examine Interaction Design. This section will first review the discipline's origin, and then how interaction can be defined. The focus is to go below the 'subface' of designing for interaction, and to examine areas in the design process that Visual Communication can influence. The research into Aesthetics of Interaction and Pragmatic Aesthetics are useful bridges to achieve this. Through supporting research from HCI, these bridges are explored to search for common points of contact with Visual Communication. In doing so it opens the review up to phenomenologically situated interaction. This philosophical turn toward examining interaction from an emotive, experiential, and aesthetic position, brings the research back to a socio-cultural context. This is an area in which Visual Communication, as facilitator of

behavioural change in the viewer, can begin to influence Interaction Design in a fresh way.

2.2.1 Positional Statement

As will be apparent through the later chapters of this doctorate, it is important to remind the reader that its thesis is an intersection between *Visual Communication* design and Interaction Design, to empower the interaction designer to put themselves into the place of the users they need to design for. The central premise is that visual communication techniques (as used primarily by graphic designers or illustrators) through a new visual phenomenological methodology, provides interaction designers with a structured methodology to visually interpret what happens within a lived experience. This is to demonstrate how *Visual Communication* can offer a fresh influence on Interaction Design, through facilitating interaction designers to create their own visual stimuli, through visually interpreting what happened within the moments of a lived experience. This provides a way for interaction designers to 'see through the eyes of the user' from a visual analysis of their user own research.

Therefore the following contextual review section will focus on Interaction Design literature, particularly two theoretical and practical 'bridges' of *Aesthetics of Interaction* and *Pragmatic Aesthetics*. In section 2.2.4 below the *Aesthetics of Interaction* will be reviewed, followed by *Pragmatic Aesthetics* in 2.2.5, in order to be able to structure the discussion on the importance and impact of the aesthetic upon interaction designers' process. This is possible (as it will be seen in 2.2.4) with Petersen's *et al.* (2004) proposal that the aesthetic can be considered as a fifth style of interaction. This piece of HCI research becomes a central influence in developing the thesis, making it easier to establish a common connection between HCI, Interaction Design and *Visual Communication*. With this proviso it will become clear when reading section 2.2.4, why this review does not go any deeper into *Aesthetics of Interaction*

research than it does.

Of course the aesthetic has been central to *Visual Communication* design from its earliest origins for obvious reasons, but thanks to the recent misguided conception of its designers only being 'decorationists' relegated to 'skinning code,' the aesthetic has had a period of not being taken seriously by HCI (and its existing influence on Interaction Design), and it has taken the last twelve years for HCI research to begin to seismically shift their narrative. This doctorate's thesis can be seen as an additional dialogue (from a non-HCI, *Visual Communication* perspective) to demonstrate how interaction designers can employ aesthetics much earlier in their design process. Part of this seismic shift within HCI can be attributed to the influence of Pragmatism.

In this thesis Pragmatism will be shown to be used as a theoretical 'glue' in synthesising semiotics with phenomenology; visual interpretation with ideation; and HCI with *Visual Communication*. This begins with the pragmatist view of aesthetics as a participatory relationship between the visual and the viewer. In 2.2.5 this is reviewed from a HCI research perspective to show how interaction designers use pragmatic aesthetics to frame experience. This thesis argues that through the development of the visual phenomenological methodology, a designer-led methodology created with the interaction designer in mind, will facilitate designers' own understanding of their user research from the users' point of view, through making theoretically structured visual interpretations. In doing this, it is the interaction designers themselves, by their own hands, who facilitate the emergence of their own understanding of what users saw/felt/did during a lived experience.

This will all become more apparent as the following chapters build upon each other, but before continuing to read the following review, it is important for the reader to understand that this research helps to clarify the gaps in the existing research from which the visual phenomenological methodology will be developed. In doing so, the thesis for *Visual Communication*'s fresh influence on interaction designers can be demonstrated. With the designers triggering

their own behavioural changes in the design decisions they then will make, in turn demonstrating how the aesthetic aspect of interaction can be shown to be effective.

2.2.2 The Interaction Design Discipline

Interaction Design in the 1990s emerged out of several disciplines influenced by HCI, and included enquiries into the design strategies, to design a person's physical and emotional dialogue over time within an experience. This was achieved through the design of a product, service, or system (Kolko, 2010, p11). Interaction designer Dan Saffer summarises his discipline as:

> "It wasn't Product Design exactly, but they were definitely designing products. Nor was it [Visual] communication design, although they used that discipline's tools as well. It wasn't Computer Science either, although a lot of it had to do with computers and software" (Saffer, 2006, p3).

Bill Moggridge (2007), the co-founder of interdisciplinary design firm IDEO, coined the term 'interaction design' to define this new user-centred design discipline, which would be based upon real people's needs and desires. Or as McCullough puts it, "design is for active, humane life" (2005, p173). This would create imaginative, attractive, and "compelling experiences [to] tame the complexity created by technological advancements" (Kolko, 2010, p30). This would provide a designed level of aesthetic pleasure in the use of products, systems and services, which placed human factors at the heart of the design process. The discipline of Interaction Design is not to be confused with the similar sounding 'interactive design,' which "tends to be an umbrella term, often used in higher education and industry to encompass multiple disciplines that fall into the interactive realm" (Pannofini, 2012, p6).

To be successful, an interaction designer needs to gain knowledge about the nature of the interaction they are designing for. This includes the needs, the intent, and desires of the people who will use the designed product, system or service. This is the eponymous end 'user'. To achieve this knowledge of an end-user, the interaction designer has to drill-down below what Nake describes as the "subface" (2008) of the interaction. Below this subface, the interaction

designer must understand, "how people move around, how they assimilate, and what kinds of local responses they encounter" when they perform the tasks that a new design aims to better facilitate (McCullough, 2005, p173). As Alan Cooper quite rightly states, "if you're going to do user-centred design you've got to understand the user" (Cooper interviewed in User Experience Podcast, 2006).

Interaction designers see interaction in the world as "a generative, constructive phenomenon among a live being, an artificial form, and a context, influencing one's quality of experience, and facilitating the transference (or mutation) of meaning from the designer to the intended user" (Uday Gajendar, interaction designer, cited in Kolko, 2010, pp113-114). The materials they use to mediate this facilitation differs from the materials used within Product, or [*Visual Communication*] and are more "flexible, ungraspable, and phenomenal" (Lim, 2007, p245). They create "designs that resonate with their audience," which solve users' complicated problems, to enhance "the human experience" (Kolko, 2010, p62). What the industrial designer Henry Dreyfus stated, in 1955, still remains relevant to designing for interaction today:

> "If the point of contact between the product and the people becomes a point of friction, then the industrial [or interaction] designer has failed. If, on the other hand, the people are made safer, more comfortable, more eager to purchase, more efficient, or just plain happier, then the design has succeeded" (Dreyfus cited in McCullough, 2005, p19 (my annotations in brackets)).

It is in understanding the attributes of materials and design processes, that the designer can manipulate to produce a positive interactive experience, which is greater than those attributes used. McCullough argues, "Interactivity, at its very roots, connects [users'] mental states to available opportunities for participation" (p47). But users "have a very hard time explaining why they do the things they do" (Kolko, 2010, p50) - after all, users are people, and people do strange, unexpected, irrational things. In any situation, each person will perform an action based on how they understand and interpret their options. Suchman in her book describes this as a 'situated action' (1989), a moment-to-moment response within any given experience that is "an ongoing, improvised

activity (...) organized in response to the features of the setting in which they arise" (Dourish, 2004, p72).

Human Factors expert Don Norman outlines four principles of good interaction: Conceptually, the user must be able to form a *mental model* for what the interface offers to do. The functions of the product, service, or system must be cognitively mappable, to ensure users' ease of use, through an interface with it. So they know what to do at any one moment. Therefore the users' actions must be fed back, to indicate the present situation. The interface with the product, service, or system must be visible to achieve all of the above

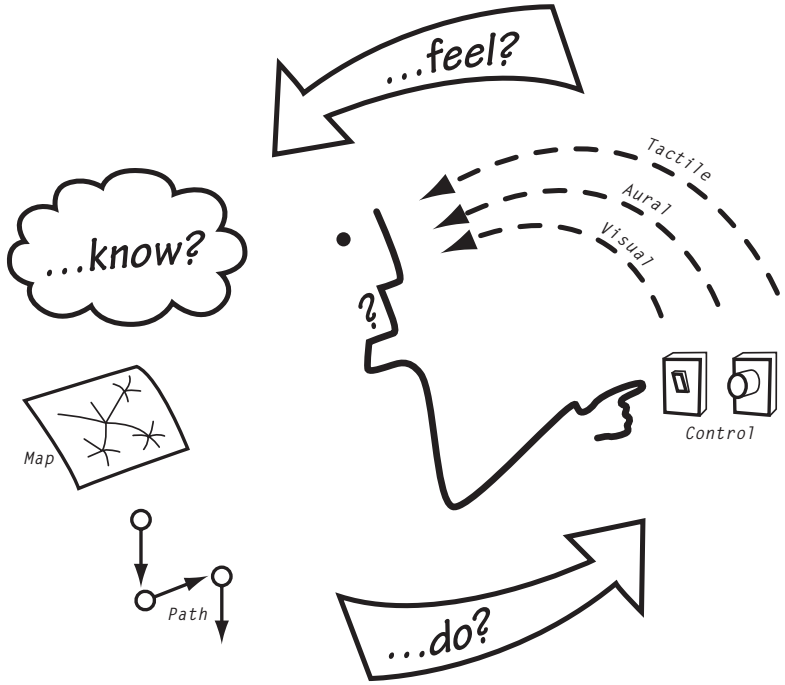


Fig. 2.14: Bill Verplank's interactive loop.

(Norman, 1998). These principles are what Bill Verplank refers to (see Fig. 2.14) as 'KNOW' (cognitive mapping and understanding paths), 'DO' (using the interface's functions and the user taking control), and 'FEEL' (aural, visual and even tactile feedback) (Verplank cited in Moggridge, 2007, pp126-127).

In order to go below the subface of the interaction, into understanding the user, the guidance of Kolko, McCullough and Cooper needs to be appended with Travis' notion that, "You might want to believe that users know why they struggle, but they don't. It's not what users say. It's what users do that

matters" (Travis, 2014). The interaction designer will engage in, or commission research into, how to "witness and record these minute and quick moments of humanity" (Kolko, 2010, p51), to reveal "conditions otherwise taken for granted" (McCullough, 2005, p27). This knowledge is provided to the designer in data, which takes many different qualitative, and/or quantitative forms. Interaction designers have developed a number of ways to process and interpret this data, to "humanize a situation and illustrate a cohesive vision of product use over time" (Kolko, 2010, p48). Two of which are the user's *mental model* and the *persona*.

2.2.3 The Mental Model and the Persona

From a HCI, and Computer Science, perspective both Cooper (2007) and Norman (1983, 1998) raise the term of a *mental model* as a cognitive framework tool, which a user relies on moment-to-moment, to make sense of each situation, and task, they encounter. Cooper describes a *mental model* as a person's "own internal representation of reality — the way they think about or explain something to themselves" (p118). On the designer's part, understanding a user's *mental model* has been seen to help solicit the correct design choices, which allows a user to use the designed interaction. This places the designer in a position of empathy with the user, defining for themselves their own cognitive conceptual visualisation. Norman describes this as the design model (1986, pp151-152), but McCullough argues that such a use of a *mental model* only arises "occasionally, and only when necessary" (2005, p34). Cooper though, urges designers to design interactions that are "based on user *mental models* rather than implementation models"[2] (2007, p31), as the user

2 Conceptual models: Interaction Design aims to rebalance digital products in favour of the human rather than the machine. By facilitating clearer cognitive behavioural understanding in the user, interactions can be made more beneficial to the user. Norman (2009) gives an explanation of conceptual models in order to visualise how humans and computers work. The first model he refers to is the system model (or implementation model). This is the cognitive model that explains the processing structure of the code. But how code processes its actions and how human beings believe a computer/device/machine works are not the same. The human's *mental model* of how it works can be simplistic, counter-intuitive, fanciful, inaccurate, and illogical; but as long as it helps the human successfully use their computer/device/machine it doesn't matter to them. Where a lot of problems arise within interactivity is the chasm that can form because these two *mental models* are representationally different. One is a mapping of actual processes – 'implementation', the other is purely notional – 'explanation'. To interface between 'implementation' and 'explanation' a third model arises, a model that Norman refers to as the design model, and Cooper *et al.* (2007) refers to as a represented model. A designer's model that maps closer to a system/ implementation model maybe more 'accurate' to the actual mechanics of processing, but is cognitively problematic to human users. A successful interface is one where a user can see how their "goals and needs can be met" (ibid. p32). This is achieved through making the design model follow as closely as possible the users' perceptions of how they believe they access the content.

won't understand how an interaction works from a pure system perspective, engineered by the rationalist approach to human-computer interaction.

Alternatively, the human-centred approach to the design process affords the interaction designer to model archetypes of target users from their user-research. These hypothetical creations, distilled from user research, give interaction designers, "a very malleable tool to look through the eyes of the users" (Cooper interviewed in User Experience Podcast, 2006), to "anticipate with some degree of accuracy what an individual will do in a given situation" (Kolko, 2010, p46). The *persona*, as it is called, is rich in personal detail. It is presented in a form of a fictitious person or persons, complete with photograph, biography, aims, desires, motivations etc. Each *persona* reflects a key target audience member that the subsequent designed interaction needs to work for. It gives a context for users' needs, and as McCullough iterates "contexts are full of props and cues, which serve as learning resources and memory devices for evolving patterns of usage" (McCullough, 2005, p37). So it is up to the interaction designer to interpret the needs from each *persona*, by looking below the existing subface of past interactions, to understand the present issue. With each proposed Interaction Design idea the interaction designers ideate, they test their design assumptions against each *persona*, to see if the design is viable from a user perspective.

As far as the generalised *persona* can actually reflect, what Cooper describes as looking through users' eyes, in order to design better interactions remains unclear in the literature. While both *mental models* and *personas* have track records, in helping a multi-disciplinary design team to test the development of their interaction designs, neither of these tools truly goes below the subface to reveal the actual user experience through 'the eyes of the users.' This problem is never discussed. But interaction designers continue to create these fictionalised representations, from qualitative user research, and quantitative human factor data. But, to see through users' eyes on how they work through an interactive experience, is an ontological issue. The philosopher Martin Heidegger defines

	Paradigm 1	Paradigm 2	Paradigm 3
Metaphor of Interaction	Interaction as man-machine coupling	Interaction as information communication	Interaction as phenomenologically situated
Central Goal for Interaction	Optimizing fit between man and machine	Optimizing accuracy and efficiency of information transfer	Support for situated action in the world
Typical Questions of Interest	How can we fix specific problems that arise in interaction?	What mismatches come up in communication between computers and people? How can we accurately model what people do? How can we improve the efficiency of computer use?	What existing situated activities in the world should we support? How do users appropriate technologies, and how can we support those appropriations? How can we support interaction without constraining it too strongly by what a computer can do or understand? What are the politics and values at the site of interaction, and how can we support those in design?

Table 2b: Harrison's Three Paradigms of HCI (Harrison et al., 2007, p10).

	Five Styles of Interaction				
Perspective	System	Tool	Dialogue Partner	Media	Aesthetic Experience
Man	System component	Master	Equal partner	Communicator	Improvisator
Man-Machine Interaction	Between equal partners	Mediated by machine	Man-machine dialogue	Supporting human-human dialogue	Play
Interaction Ideals	Efficiency	Transparency	Human dialogue	Communication	Intrigue

Table 2c: Five Styles of Interaction (Petersen et al., 2004, p274).

revealing this type of data as *Entdeckt-sein*, or a state of *Being-uncovered* (2013a [1929], p261). It can be argued, that this type of data is synonymous with what interaction designer Jon Kolko calls sensory data, as it requires interpretation to make sense of it. Heidegger posits that interpretation is not generated from, or in the object of, the experience, but from the personal background that an individual brings to an experience (*ibid*.). As Leonard (1994) succinctly puts it, "Nothing can be encountered independent of our basic understanding" (p52). To really see through 'the eyes of the users' requires a phenomenological methodology and as Travis has said, "It's what users do that matters" (2014), and a phenomenological methodology does help reveal that information. Once revealed, and in a way that is useful to interaction designers, this sensory data can augment both existing tools, or form a new tool.

The use of interpretation though has its critics. Kolko admits that, "interpretation is qualitative, and can be wrong. This makes for a difficult combination when trying to justify design decisions" and it occurs "in the head of the designer" (2010, p52). This to some people raises the spectre of subjectivity over the design process. But this spectre is a 'straw man,' as McCullough reassures that, "subjectivity is inherent to usability. Differences in abilities, intentions, and exploration processes affect the successful use of technology at least as much as technical features" (McCullough, 2005, p160). Kolko himself also offers functionalist critics further reassurance that interaction designers understand "the importance of structuring this interpretation into a repeatable and formal process, and a good interaction designer is able to communicate not only the pragmatic interpretation but also the necessity of interpretation" (Kolko, 2010, p52).

The *persona* is created in the early ideation and scoping stages of the design process, and when used strategically, it "begins to become an active member of the design team" (Kolko, 2010, p45). Through the *persona*(s), the design team can begin to understand the contexts, within which the user is located, when the interaction (to be designed for) takes place. The contexts that are

revealed also reveal much about the user, as all their decisions are informed by previous actions and events, and their own understanding is based on previous interactions (McCullough, 2005, p36). But, to really understand this ontological 'hidden' data about the user, which is below the subface of an interaction, the *persona* is not designed to reveal that data in its current qualitative form. In order to begin to frame the solution to this problem from a phenomenological position, this contextual review will now need to cross over from Interaction Design into some of the HCI research that informs Interaction Design's creative process.

2.2.4 HCI and the Aesthetics of Interaction

As an influence on Interaction Design's development as a discipline, HCI's two traditional paradigms, according to Harrison *et al.* (2007) of man-machine coupling and information communication, have raised empirical, scientific, objective knowledge as the normative (Bertelsen & Pold, 2004; Udsen & Jurgenson, 2005). But in 2007, Harrison defined a new third paradigm of interaction, as being "Phenomenologically Situated" (2007, p10) (see Table 2b). Before Harrison, Petersen *et al.* (2004) had proposed that there were five styles of interaction: *system*, *tool*, *dialogue*, *media* and *aesthetic* (see Table 2c). This built on the 1984 work by Bødker & Kammersgaard, with Petersen adding a fifth style of interaction, the *aesthetic*. Petersen saw that system interaction positioned the user as part of the computer system. Tool interaction positioned the user as being in control of the system. *Dialogue* interaction positioned both the user and machine as equal partners in communication. Media interaction placed the interactive system as a mediator between human-human communication (p274).

Both the first two HCI paradigms, described by Harrison, are not mutually exclusive, and do overlap. They can be mapped onto the first four interaction styles proposed by Petersen (see Table 2c). Petersen, and her team, within their thesis define three aspects or styles of aesthetics that pragmatically emerge from each person's personal experience of interaction *in-the-world*.

These three aspects of *aesthetics* comprise of *socio-cultural*, *mind and body,* and *instrumentality* (2004, p270). This can be framed ontologically from a Heideggerian perspective. By exploring the *aesthetic,* the emphasis is on the user as improvisator in the interaction. So to understand what is improvised, is to look at the subface of the interaction, to reveal what the user does. This is all phenomenologically situated within Harrison's third HCI paradigm. Framed in this way, the mind-body is understood as the *self* (or *Dasein*[3]); the *socio-cultural* context as *Being-in-the-world*,[4] and *instrumentality* as the use of objects as *presence-at-hand*.[5]

This ontological framework will be discussed in greater detail in section 2.3 of this contextual review, to frame the synthesis between design, philosophy and methodology. But by going below the subface of an interaction, or what Lim *et al.* term the "interaction design space" (2007, p250), designers can begin to understand the structure of someone's lived experience *in-the-world*. This can be done from an emotive, experiential, *aesthetic* position, if Phenomenology is used. The *Aesthetics of Interaction* is a way to bridge *Visual Communication* with HCI, as Lim *et al.* (2007) see *aesthetics* being appropriated, through both the analytical mind and embodied experience. This is appropriated by drawing upon embodiment in parallel with symbolic representations (semiotics of the interface). In *Visual Communication*, as facilitator of behavioural change, the aesthetic is important to not only attract attention, but to carry the communication. Its utility, like in HCI's *Aesthetics of Interaction* is pragmatic and emergent.

2.2.5 HCI and Pragmatic Aesthetics

Traditionally, within the first two paradigms, HCI has seen anything to do with *aesthetics* as, "inversely proportional" to usability (Ahmed *et al.*, 2009).

3 More on *Dasein* in section 2.3.2 of the contextual review.

4 *Being-in-the-world*: Heidegger coined this term to refer to the construction of meaning of an individual's existence in the world revealed in relation to the immediate purpose of each *Being*.

5 *Presence-at-hand* is a Heidegerrian term that describes a tool's state of being 'occurent' in the consciousness of the user as a facilitator for an affect rather than just being another 'available thing' (Dreyfus, 1991, pxi). From a Heideggerian experiential perspective this is the step of the tool moving in the mind of the user from a state of *Zuhandenheit* (*readiness-to-hand*) to a state of *Vorhandenheit* (*presence-at-hand*).

With HCI's focus upon functionality and usability, *aesthetics* was originally seen as having a perceived negative, and detrimental affect upon efficient functionality (Tractinsky, 2004). HCI encountered, "deep philosophical incompatibilities" (Bardzell, 2009, p2357) with understanding *aesthetics* from a quantitative perspective. Indeed, if *aesthetics* was only understood in a classical way, then this may have remained the case. 'Classical' *aesthetics* is analytic, and has a tradition of seeing *aesthetics* as having no use or function beyond a pure intrinsic value (often reduced to the shorthand term 'beauty' or 'beautiful'). This view has a tendency to frame the creator of any *aesthetics* work as someone creating beauty, only to be appreciated and understood from the direct immediate perception of a viewer. This assumes a functionalist perspective that everything is reducible to a 'means-end' equation, which only defines a capacity to produce a single desired result or effect. This approach to aesthetics leaves out an important factor, that pragmatist John Dewey argued should be considered, that of the experience. Pragmatism, as a philosophy, views experience as emerging from a human embedded in a *socio-cultural* context in the world. Their consciousness of the situation is an abstraction "based on experience and (...) applicable to experience" (Ihde, 2009, pp9, 19). A position not too different to a Heideggerian position.

In Dewey's thesis (1980 [1932]), he argued that we do not see *aesthetics* solely cognitively, but experience it emotionally as embodied subjects, taking into account emotion, intellect and engagement. Therefore, a pragmatic position beyond surface beauty takes aesthetics into an embodied experiential understanding of what *aesthetics* is. Building upon Dewey, Shusterman argues that the function and value of *aesthetics*, lies not in a specialised 'means-end,' but in a more global way of serving a variety of ends. He says that *aesthetics* enhances, invigorates and vitalises our immediate environment, thus "aiding our achievement of whatever further ends we pursue. [*Aesthetics*] is thus at once instrumentally valuable and satisfying in itself" (1991, p9). Therefore, the *instrumentality* of an *aesthetics* is not predefined by, but is emergent within, its

use, and "is connected to experiential quality and value" (Petersen *et al*., 2004, p271). From a pragmatic view, Wright *et al*. (2008), defines this as "constituents of the totality of a person acting, sensing, thinking, feeling, and meaning making in a setting, including his/her perception and sensation of his/her own actions" (p18.2).

Aesthetics cannot be understood by quantification, or reduced to simplified procedural scientific processes. In McCarthy and Wright's earlier book, Technology as Experience they state that Pragmatism sees "knowledge as participatory" (2004, p17). HCI researchers are now viewing *aesthetics* within Petersen's 5th interaction style, and are using Harrison's (2007) work on a third HCI paradigm, to understand user experiences as phenomenologically situated. As such, from a design perspective interaction designers, "are more fruitful in focusing their efforts on the creation of the structure in which an experience takes place" (Kolko, 2010, p83). The three aspects of *aesthetics*, comprising of *socio-cultural*, *mind and body*, and *instrumentality*, provide an "emotional or experiential resonance" (Kolko, 2010, p83) through which designers can shape, what Dewey refers to as, an *aesthetic experience* (Dewey, 1980 [1932], p58). As Tractinsky (2004) revealed (and as *Visual Communication* has always understood), higher *aesthetic* values aid the enjoyable continuation of an experience until consummation. First impressions of *aesthetic experience* within humans may be affective, as we feel the experience before we understand it (p13). Dourish (2004) suggests, from a pragmatist perspective, that the world is, "already filled with meaning. Its meaning is to be found in the way in which it reveals itself to us as being available for our actions" (p116). The use of a pragmatist philosophical framework on *aesthetics* as experience, rather than from an analytical position, also places *Visual Communication* beyond superficial concerns with artifice and 'beautification' of code.

2.2.6 Phenomenologically Situated Interaction

Human interaction with a designed artefact is participative, and embodied within the physical world, with its constructed actions situated in a specific

time and place. Therefore, improvisation (or freedom) of use of a designed interactive system, or artefact, leads to an experiential variance between the different people who use the designed interaction, as to what experience they actually have. This is an ontological problem, and one where knowledge arises from 'situated viewpoints,' through relationships and sequences that independently define what happens within experiencing an interaction. Harrison proposes that HCI's traditional position of 'objective knowledge' has shifted into a phenomenological position, within which to understand the experience (especially an experience that is aesthetic) knowledge arises from 'situated viewpoints' on what took place. This shift recognises, "a plurality of perspectives (...) taking into account but not adjudicating the varying and perhaps conflicting perspectives of users." (Harrison *et al.*, 2007, pp7-8).

Petersen and Harrison both share a perspective, that up to recently has been marginalised, and subordinated from within the first two HCI paradigms. In the third phenomenological HCI paradigm, the shift of exploring designing interactions, puts focus upon an emergent *aesthetic experience* of humans as embodied actuators, within a physical and social world. HCI has come to see that, by trying to understand interaction from an emotive, experiential, aesthetic position, it must do so from a *socio-cultural* context within the user's embodied and situated personal understanding. This builds on McCullough's Digital Ground (2005) and Dourish's Embodied Interaction (2004) theses, and brings HCI closer to *Visual Communication* to connect, and consociate with Interaction Design, to improve future interaction designs. Before any synthesis can be made toward how this manifests itself, it is now important to explore what is meant by Phenomenology.

This contextual review section discussed the origins of the discipline of Interaction Design (Moggridge, 2007; Kolko, 2010; Saffer, 2006; and McCullough, 2005). It then explored several ways in which interaction is defined. From Norman's four principles of good interaction (1998), and

Verplank's interaction loop (cited in Moggridge, 2007) the review focused upon Petersen et al.'s five styles of interaction (2004). This took the reader below the subface of interaction (Nake, 2008). In doing so, the review looked into some of the research into the Aesthetics of Interaction (Lim et al., 2007). This research opened up areas in the Interaction design process that Visual Communication can influence. One such area was how aesthetics in designing for interaction can be approached pragmatically (Dewey, 1980 [1932]; and Shusterman, 1991). Another area explored the tools interaction designers currently employ such as mental modelling (Cooper, 2007; and Norman, 1983, 1998), and personas (Cooper, 2006; and Kolko, 2010). Through examining relevant supporting research from HCI, these became common points that Visual Communication can connect with.

In doing this it further opened the review up to phenomenologically situated interaction (Harrison et al., 2007). This third HCI paradigm focuses upon an emergent aesthetic experience of humans as embodied actuators, within a physical and social world. This phenomenological view of interaction brings the research back to a socio-cultural context, into an emotive, experiential, and aesthetic position. To understand such a position, an ontological approach was made based upon what Heidegger calls Entdeckt-sein. This is a state of ***Being****-uncovered (*2013a *[*1929*]), where the awareness of the meaning of our interactive (lived) experience is revealed by being-in-the-world. Interaction designer Jon Kolko, uses a useful term to describe how to understand such data that is uncovered within a phenomenological view of interaction. Kolko (2010) describes this as sensory data, which can be analysed to understand how to facilitate successful interaction for others in a similar experience. How this analysis can be made, and disseminated, is an area in which Visual Communication could influence.*

2.3 Phenomenology

In the review of the Interaction Design literature regarding interaction, phenomenology was revealed as way in which understanding of an interactive experience can be understood. In fact, Harrison et al. went as far as to say that the third HCI paradigm, was phenomenologically situated, in examining the plurality of perspectives of users. As these perspectives can be varied and conflicting, this section will examine the relevant phenomenological literature to begin to understand how experience can be understood, in order to begin to ideate interaction design solutions. Firstly, the two philosophical forms of phenomenology will be briefly explored, before further reviewing the hermeneutic form. In doing so a 'lived experience' will be examined as a term to describe a particular experience. This leads onto reviewing what is understood as interpretation, so that it becomes clear how the hermeneutic form of phenomenology is interpretive.

Briefly, phenomenology within design will be examined, in order to reveal the different contexts its application take. This reviews diagrams from interaction design researchers, which offer the reader an insightful context to where the contextual review then turns. Pragmatism re-surfaces, as a useful philosophical and practical bridge, between Hermeneutic Phenomenology to Visual Communication. Heidegger's hermeneutic circle of interpretation, becomes an important discovery from the reviewed literature, and this leads onto reviewing practice-based phenomenological methodologies, in order to understand experiences. Cultural probes are briefly explored, as a means of collecting what Kolko describes as sensory data by a researcher. Finally, the term phenomenology of signification is examined in the context of what the review has revealed so far, to understand its potential to link the disciplines of Interaction Design and Visual Communication together.

2.3.1 Phenomenology and the Lived Experience

Phenomenology as a philosophy takes two forms: eidetic (descriptive in nature) and hermeneutic (interpretive in nature). Martin Heidegger [1889-1976] proposed his hermeneutic,[6] interpretative form over his tutor Edmund Husserl's [1859-1938] eidetic form, that was transcendental in nature. His Hermeneutic Phenomenology saw humans as always involved in their own understanding of their own lived experience, a "unitary phenomenon [that] must be seen as a *whole*" (Heidegger, 2013a [1927], p78), and that everything encountered in a lived experience "manifests itself in a context of occurrences" (Heidegger, 2013b [1919-20], p36). The construction of meaning of an individual's existence in the world, which Heidegger refers to as *Being-in-the-world*, is revealed in relation to the immediate purpose of each *Being*. This is a state of existence that Heidegger defined as *Dasein* (*Being-there*), the *essence* of being a human *Being* (Heidegger, 2013a [1927], p27; and Dreyfus, 1991, p14). A *Being's* consciousness cannot help conferring some form of meaning onto what is experienced *in-the-world* (Johnson, 2000, p136), as the state of *Being* is, "inseparable from the world" (Dourish, 2004, p108). To understand what someone experiences leads to an ontological enquiry, making known the structures of existing in the world. Phenomenology, "in place of the nebulous [a concretisation of the abstract] actualizes itself both in and through the phenomenological method" (Heidegger, 2013b [1919-20], p22).

Earle confirms that Heidegger's view was that no understanding happens without *pre-understanding* (2010, p288). As Palmer points out, "one must already have, in some measure, a knowledge of the matter being discussed" (1969, p88). Dourish confirms that Heidegger's great innovation behind his seminal work, *Being and Time*, was to ask the ontological question, "'how does the world reveal itself to us through our encounters with it?'" (Dourish,

6 Classed as part of Continental school of philosophy, rather than the Analytic philosophic tradition, Phenomenology is "primarily concerned with how we perceive, experience, and act in the world around us" (Dourish, 2004, p21), and affords "plausible insights that bring us in more direct contact with the world" (van Manen, 1990, p9). The Analytic tradition (of Bertrand Russell and Ludwig Wittgenstein to name two philosophers), focused on the importance of language and logic to answer the important philosophic questions. The Continental philosophy (that included Martin Heidegger and Edmund Husserl), on the other hand focused on human experience (Bragg, 2011), and through Phenomenology they rejected the Analytic approach, to investigate the 'how' and 'what' meaning of the phenomenon of existing as a human in the world.

2004, p107). This was instead of asking epistemological questions about knowing things about the world. This places Heidegger as an existentialist, although he never liked the label, where the categories and forms of existence, as a *Being-in-the-world*, are phenomenologically revealed from perceiving experience. To simplify, Dourish explains this as seeing-and-understanding, rather than understanding-and-seeing (2004, p21). This goes against the Cartesian mind/body separation, as Dourish explains that to Heidegger, "*Being* comes first; thinking is derived from *Being*" and "our understanding of the world is essentially an understanding of how we are in it" (*ibid*. p107). Earle describes this as, a "reciprocal activity between *pre-understanding* and understanding" (Earle, 2010, p288), to understand a phenomenon of a lived experience. This reciprocal activity is interpreted in a circular way, that is known as a *hermeneutic circle*. Heidegger posited that interpretation is the laying out of the involvement of a sense of *self in-the-world*, a phenomenon of a human (*Being*) *as-is* (THERE), within a lived experience (Heidegger, 2013a [1927], pp190-191). He used the neutral German word *Dasein* to define *Being-there-in-the-world*.

Max van Manen, in his book Researching Lived Experience, uses Wilhelm Dilthey's term[7] 'lived experience' to define a moment in time, in which reflectively, the person who has lived that moment, recollects the experience that has already passed. In order to understand what that experience was, the ontological question, 'what is the *essence* of the phenomenon that happened?' needs to be asked of the lived experience, as to what "makes a some-THING what it IS and without which it could not be what it is" (van Manen, 1990, p10). Such a studied lived experience, therefore, has phenomenological "structural or thematic aspects" (*ibid*. p78), that can be interpreted to explain what was seen, thought, felt and done within the interaction, that defines the experience.

A lived experience, "involves our immediate, pre-reflective consciousness of life" (*ibid*. p9), which Dilthey saw as a temporal flow that is experienced by

7 Wilhelm Dilthey [1833-1911] was a German historian, psychologist, sociologist and hermeneutic philosopher. Together with Kierkegaard, he was an early influence on Heidegger.

individual consciousness, which "has a beginning and an ending and thus becomes transformed into an expression" of what happened (Bruner, 1986, p6). Within this consciousness, "the will and its inhibition emerge" (Dreyfus, 1991, p69), when on reflection "life understands itself" (van Manen, 1990, p179). To Heidegger, the 'lived experience' of Dilthey was a form of understanding of *self*, that Heidegger defined as Existentiell understanding (Dreyfus, 1991, p20).

Psychologist Mihalyi Csikszentimihalyi, frames a lived experience as either *exotelic* or *autotelic* (1990, p67). An *exotelic* experience is where activities are performed mechanically, with the perception of involvement falling below conscious perception. This is synonymous with pragmatist John Dewey's (1980[1934]) concept of an *anaesthetic* experience, where action is as unconscious as breathing, but without an obvious culmination in the experience. Whereas, an *autotelic* experience is an optimal experience with an end in itself, that can reflexively be defined as having a beginning, a middle, and a definite culmination, within which one absorbs what is experienced, and carries the sensation onwards. It is AN experience, not done "with the expectation of some future benefit, but simply because the doing itself is the reward" (Csikszentimihalyi, 1990, p67).

An *autotelic* experience is synonymous with Dewey's main concept of an aesthetic experience. This is an experience where any personally felt resistance, tension or excitations "that in themselves are temptations to diversion, into a movement toward an inclusive and fulfilling" culmination (Dewey, 1980 [1934], p58), in which the individual feels most alive (Shusterman, 1991, pp10-11) in the "perception and sensation of their own actions" (McCarthy and Wright, 2004, p85). Csikszentimihalyi, in his psychology research on the state of FLOW, defines a *phenomenology of enjoyment* that frames such an *autotelic* (or *aesthetic*) experiential state of *Being*. Through decades long research, he defines eight components that define when a flow of enjoyment is likely to be revealed. These components are: (1) a chance of completing; (2) concentration on actions; (3) clear goals; (4) immediate feedback; (5) effortless involvement;

(6) a sense of control over *self*; (7) a concern for *self* disappears; and (8) a sense of time is altered (Csikszentimihalyi, 1990, p49).

Dewey distinguishes between experience(ing), and having AN experience. The former is exotelic in nature, with no "genuine initiations and concludings. One thing replaces another, but does not absorb or carry it on" (Dewey, 1980 [1934], p41) that is 'so slack' that although it is a form of experience the *self* (*Dasein*) is not actively conscious of it, that it can be described as *anaesthetic*. Whereas AN experience becomes memorably aesthetic, due to a personal cognitive and embodied sensation, through a personal absorption in the experiential *autotelic* moments of what was experienced. This has "a unity or a *whole*ness that is fulfilling" (McCarthy and Wright, 2004, p58). Leonard adds, that it is only by interpreting another person's values, that their sense of *self*, within a lived experience, can be revealed and understood (Leonard, 1994, pp51-52). What many may pass off as instinct, or *autotelic*, Heidegger calls *pre-understanding*, defining three states: *fore-having*, *fore-sight* and *fore-conception*. To know what to do in any experience, we either base our actions on some knowledge we have in advance [*fore-having*], or something we see in advance [foresight], or something we grasp in advance [*fore-conception*] (Heidegger, 2013a [1929], p191; Conroy, 2001, p40; and Dreyfus, 1991, pp198-199). Put simply, to interact with anything is a cyclical action involving three phases: know, do and feel (see Fig. 2.15). This entails an existential understanding of what it is for the sense of *self* (*Dasein*) to be able to interact in the moment.

2.3.2 Interpretation and Hermeneutic Phenomenology

Interpretation fuses two functions together: the understanding of meaning, with the explication of meaning. In Hermeneutic Phenomenology this has been identified as *ars intelligendi* (understanding), and *ars explicandi* (explaining) (Hirsch, 1976 p19). The two functions can sometimes be confused and interchanged, so Hirsch urges that when a person makes an interpretation, they first are trying to match what they sense, with what they already know, in order to first understand, before any interpretation takes place (Hirsch,

1967 p122). For an explanation to be possible, of what happened in a lived experience, an interpreter must have first construed a meaning through interpretation, "before he explains it to others" (*ibid*. p19). The philosopher Ricouer[8] states that an, "interpretation must not only be probable, but more probable than another" (Ricoeur, 1979, p91, cited in Brown *et al.*, 1989, p162). Hirsch offers another point to consider. "If an interpretation is grounded in the interpreter's entire [*fore-structure*, the interpretation will][9] no doubt be different from any past meaning, since undoubtedly a person's entire spiritual world will be different from any that existed in the past" (Hirsch, 1976, p83).

An interpretation is grounded in, "something we have in advance — in a *fore-having*" of something "which is already understood" (Heidegger, 2013a [1927], p191). This includes any interpreter attempting to make an interpretation, as this *pre-understanding* of their own previous experiences, *fore-structure* any interpretation they may make on other experiences. As Hirsch says, when an interpreter makes an interpretation, they first are trying to match what they sense, with what they already know (Hirsch, 1967 p122). So to understand something new we can't help, "comparing it to something we already know" (Palmer, 1969, p87). Llewelyn (1985) explains Heidegger's *fore-structure* as, what is practically concerning the interpreter, within the environment that the interpreter is occupying, during an interpretation.

This "means that there is something occupying [the interpreter's] attention which [the interpreter is] predisposed to see as having a certain instrumental or detrimental bearing" on the interpretation to be made (Llewelyn, 1985, p14). This *fore-structure* of *pre-understandings*[10] become, what Heidegger describes as, a 'hermeneutical Situation' of presuppositions, that need "to be clarified and made secure," if interpretation is to become "an explicit task for research" (Heidegger, 2013a [1927], p275). To presuppose,

8 Paul Ricouer (1913 - 2005), was a French hermeneutic phenomenological philosopher, close to a Heidegger's position. He is "most known for having brought together hermeneutic interpretations with phenomenological descriptions" (EGS, N.D.a).

9 The author has amended the original phrasing of the German word "*Welt*," to translate that unfamiliar term, into the Heidegerrian language that is used in this thesis. The original use of the term "*Welt*," means a spiritual cosmos, where the prior sense of the *whole* ultimately lends meaning to any person's experience.

10 *Pre-understanding* is a state of existence that is innate to all humans. *Being-in-the-world* means to have knowledge gained from previous experiences, which humans bring to new experiences that cannot be eliminated.

Heidegger states, is to "understand something as the ground" to understand the interconnections within the existence of a human *Being* (*ibid*. p270) that discloses their lived experiences. Heidegger argued that interpretation was a necessity in understanding human existence, and that interpretation, had a "circular structure" to achieve such understanding (Dreyfus, 1991, p2). At this point, it is crucial to review how Phenomenology, in all its forms, has been utilised by design.

2.3.3 Phenomenology and Design

How historically, Phenomenology and *Visual Communication* are intertwined, will be shortly reviewed, but first it is important to review how other design disciplines have also embraced Phenomenology. Both philosophically and as a practical methodology. These other disciplines span Architecture, Interior Design, Product Design and Interaction Design. Philosophically, Phenomenology was mapped to the design process, within architecture by Wang and Wagner (2007), to four defined phenomenological quadrants. Each linked to specific phenomenologists of note. These quadrants are: *Individual Phenomenology*, *Phenomenology of History and Culture*, *Phenomenology of Design Production*, and *Phenomenology Related to Metaphysics*. In their diagram, Wang and Wagner (see Fig. 2.15) map both Husserl and Heidegger into the intersection between "processes of production" and "private experience." This is exactly where the quadrant for *Individual Phenomenology* is situated (bottom left). Wang and Wagner's theoretical geography, whilst useful to understand the relevance of one phenomenologist, to an area of design, over another phenomenologist, remains a map with many routes. It is not, in itself, an actual practical methodology, that gets a designer to a practical design destination. There study merely frames Phenomenology studies on design practice.

In a similar vein, Blackwell *et al.* (2009) uses a comparative theological model of Phenomenology, as a methodology to perform a comparison of design practices. In their study, they state they are "undertaking a thematic comparison of the particular, rather than a prescription of universals" (p41),

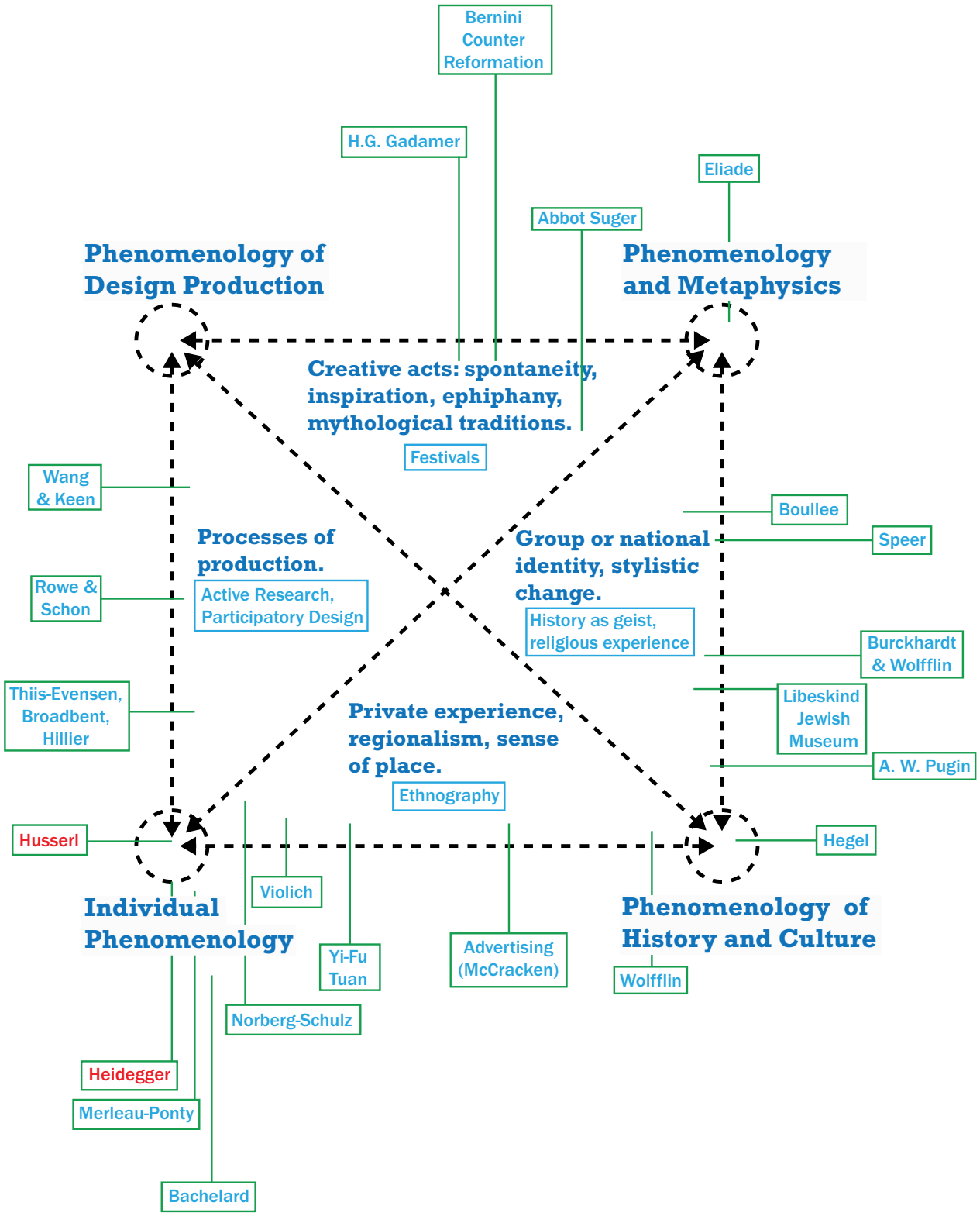


Fig. 2.15: A map of Phenomenology for the design disciplines

based upon a theological phenomenological method. This theological method first assigns "names to appearances; second, to interpret and experience those appearances; third, to withdraw and contemplate; fourth, to clarify and comprehend; and finally to testify to that understanding" (*ibid*. p41). Dr Tiiu Poldma (2003) has used a similar form of Phenomenology to study her own Interior Design students. Her approach, has connections to, Barbatsis' use of Phenomenology as an exegesis in *Visual Communication* literature (Barbatsis, 2002). But theology's use of phenomenological theory, as a meta-study to understand and interpret studio practice, rather than a design process within Interior Design itself, does not lend itself to a practical application. Brown (2006), in his Masters of Design dissertation, concludes that, "the goal of the phenomenological design process is to offer the next generation of designers a new way of thinking about the artifacts we create (...) It allows the designer to seek out deeply personal design solutions creating a more relative design experience" (p141).

Within Interaction Design, Daniel Fällman discusses an Interaction Design Research Triangle (see Fig. 2.16), where "plotting the position of a design research activity [is] drawn up in between three extremes: 'design practice,' 'design studies,' and 'design exploration'" (2008, p5). He argues that different activities, within Interaction Design, will fall within the different areas of this model, to frame a specific dimension of the whole discipline, to distinguish "Interaction Design research from other disciplines with related interests" (*ibid*.). A fellow Scandinavian, uses the term 'aesthetic function,' to also frame a dimension in which meaning is constructed, performed and reflected through the aesthetic form of a designed interaction (Folkmann, 2010, p49). Folkmann, applies the post-Heideggerian Phenomenology of Merleau-Ponty, as a theoretical grounding, through which to study aesthetics phenomenologically within the design process. He argues that Merleau-Ponty's ideas can be mapped into design, because "every piece of design contains an idea, a dimension of immateriality" (Folkmann, 2010, p46), and this phenomenological model is a

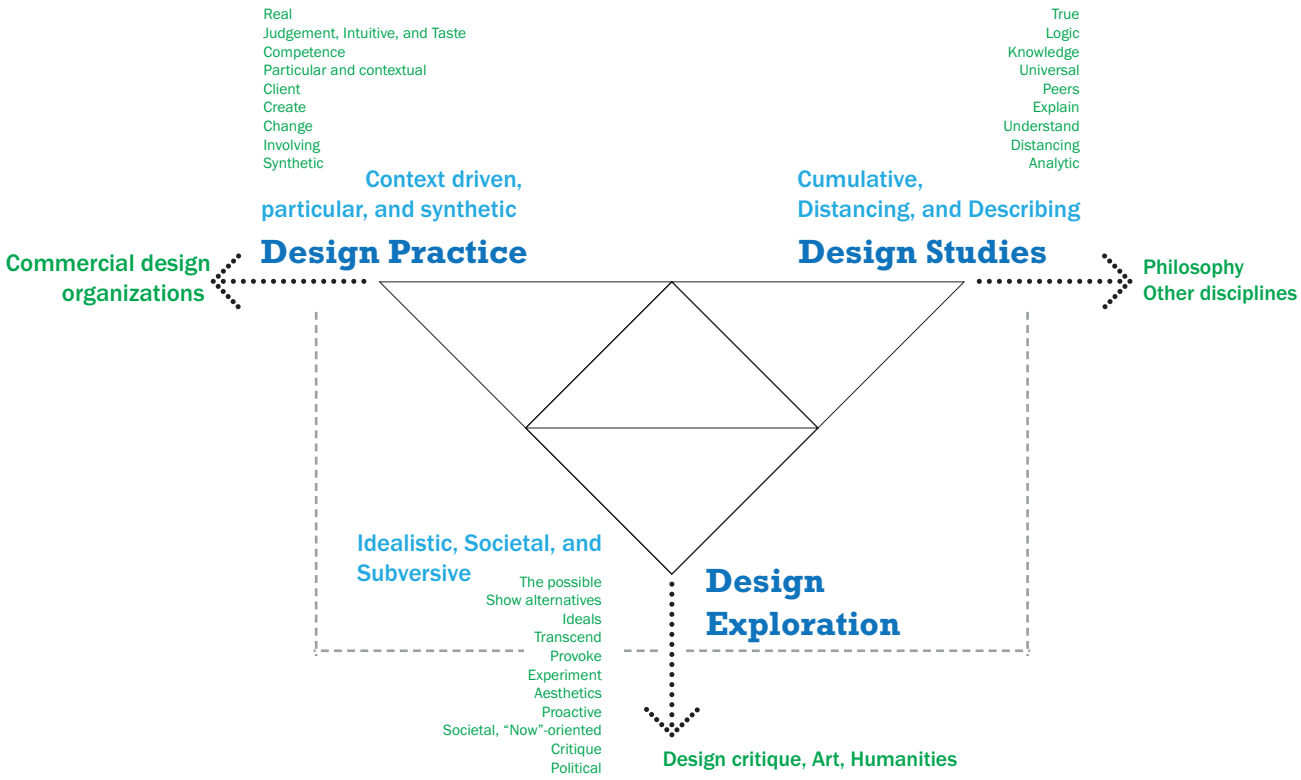


Fig. 2.16: Fällman's Interaction Design research triangle.

codification of levels of aesthetic-ness, which can be selected by a designer, based upon its relevance to a particular design solution. The application of Phenomenology in this design context is like Wang and Wagner's. It still remains theoretical rather than directly practical.

So far, this review of Phenomenology, has focused upon a metaphysical understanding of how a designer 'designs,' and focuses on the study of practice, instead of on the application within practice. Julia Moszkowicz's research, has been instrumental in establishing a clear history of Phenomenology, within *Visual Communication*. In her 2009 PhD, Phenomenology and Graphic Design Criticism: A Re-evaluation of Historical Precedents in the Age of New Media, she identifies within *Visual Communication* criticism, that designers had established phenomenological methods, in order to make sense of their practice. But, it is only very recently, that Phenomenology has been cited at all in *Visual Communication* literature as a research methodology, and only briefly in a diagram (Bowers, 2011, p5), without further explanation of a methodological framework. How *Visual Communication* operates is fundamentally concerned

with the phenomena of interpretation.

From a review of *Visual Communication* literature, for Phenomenology, shows that the word 'phenomena' is used widely (Heller & Ballance, 2001; Margolin & Buchanan, 1996; Williams & Newton, 2007; Huck *et al.*, 1997; Barry, 1997) to describe the discipline's internal and external characteristics. Several other authors do take their theses deeper towards Phenomenology (Barbatsis, 2002; Hill & Helmers, 2004; Smith *et al.*, 2005), but most stop short from describing any phenomenological methodology. In fact, Kenney (2009) in his book *Visual Communication Research Designs*, discusses qualitative research methodologies such as Ethnography, Discourse Analysis, Content Analysis as methodologies, but nothing on Phenomenology itself. As mentioned earlier, it is in Barbatsis' paper that Phenomenology, in the tradition of a theological exegesis, is used to understand "the multidisciplinary traditions of visual communication theory as a coherent field" (2002, p1).

Notwithstanding this, anything that is visually communicated relies on interpretation, through reading the semiotics for its message, to be received. This semiotic-based interpretation needs to trigger a concept in advance in ***The Receiver***,[11] (their *fore-conception*) for them to be able to interpret and 'read' the image. For a designer to succeed in visually communicating to their intended audience, whatever they have to communicate, ***The Receiver(s)*** must come to the interpreted meaning, as a result of having some knowledge in advance, of what the designer signifies in the image (their *fore-having*). Therefore, the designer is relying on what O'Neil describes as the phenomenology of signification[12] (2008, p81), in order for the design outcome to work. In understanding their audience, by studying pertinent aspects of their lived experience, any designer can improve the effectiveness of future designs. In the remaining subsections of this review Phenomenology will be explored in more depth, to see how such a philosophy can be used as a practical methodology, to facilitate the act of interpretation. The first step in this is to see how the philosophies of

11 More on this term in section 2.4.1.

12 This is further discussed in the context of semiotics in section 2.3.7.

Pragmatism and Hermeneutic Phenomenology can be utilised, to synthesise a new practical phenomenological methodology.

2.3.4 Pragmatism and Phenomenology

Pragmatism, has a history of complementing Phenomenology by providing a practical structure, in helping reveal the construction of meaning of any lived experience, through an act of interpretation. Pragmatists reject a reality that is independent of the mind, foundational and permanently 'fixed,' and the act of interpretation is the conduit through which personal reality is constructed (Shusterman, 1991, pp103-104). Pragmatism recognised that, "'consciousness' is an abstraction, that experience in its deeper and broader sense entails its embeddedness in both the physical or material world and its cultural-social dimensions" (Ihde, 2009, p19). Therefore, the practical inter-relationship between Pragmatism and Phenomenology allows the valuation, interpretation, and expression of the properties of a lived experience, to be studied from the point of view of the people living it.

There already exist two examples of Pragmatism complementing Phenomenology, which have a bearing on this thesis. The first is from Charles Sanders Peirce [1839-1914]. Peirce was one of the fathers of Pragmatism, who developed his own form of semiotics called Semiosis (Peirce, 1931, 1932 and 1933). Semiosis had firm pragmatist, and phenomenological roots. This will be discussed in more detail in section 2.4. The second example is Don Ihde's Postphenomenology (2009), through which Ihde argued that an understanding of a lived experience could pragmatically be made, through the rigorous analysis that Phenomenology affords. Ihde's argument was that whereas Phenomenology had developed a rigorous form of analysis, that gave a deeper understanding of human perception of what Heidegger terms *Being-in-the-world*, it was through Pragmatism (always the philosophy of the practical), that someone else's lived experience could become understood.

To Ihde, his Postphenomenology saw a pragmatic understanding of experience analysed through Phenomenology, that provided "a fruitful

enrichment of Pragmatism" (Ihde, 2009, p23). But Ihde's main interests lie in imaging technologies and epistemologies (Stony Brook University, N.D.), and his Postphenomenology reflects this interest from mainly an eidetic position. But Pragmatism and Phenomenology, from a more ontological position, where hermeneutic interpretation is more useful to *Visual Communication*, in order to bring to light "hidden features of an experience that would have been overlooked" (Lopez and Willis, 2004, p734), to ultimately aid better design decisions. It is through such a practical synthesis, between Hermeneutic Phenomenology and Pragmatism, that *Visual Communication* too begins to become a conduit to visually reveal that meaning. But before this is discussed in more depth, it is time to explore Heidegger's Hermeneutic Phenomenology's framework for interpretation that he referred to as a *hermeneutic circle*.

2.3.5 Hermeneutic Circle of Interpretation

A *hermeneutic circle*, is a dialogical interpretative process, between an interpreter's *pre-understanding* and understanding, of the "non-static nature of our existence" *in-the-world* (Conroy, 2003, p3). To explain a *hermeneutic circle*, Llewelyn offers an example of the structure of circular interpretation, through using a metaphor on how to interpret the meaning of a sentence within a text. To do, so it requires, "an understanding of individual words which requires an understanding of the sentence which requires an understanding of the paragraph that requires an understanding of individual sentences which requires an understanding of the language and social practices with which it is interwoven" (Llewelyn, 1985, pp102-103). This metaphor illustrates how the *parts*, that make up a lived experience, can only be understood in context to the *whole* experience, and the *whole* experience can only be understood through examining the *parts* that form it.

To reach any interpreted meaning, it is never a case of the interpreter returning to the original starting point in the circle, because at each turn more understanding is made. Plager reminds the hermeneutic researcher that, "getting too far out of the *hermeneutic circle* can decontextualize the

interpretation," and the risk of bias is addressed by, "uncovering biases for scrutiny" (Plager, 1994, p80). To Plager this presents the interpreter the freedom to move back and forth within the circle of interpretation, "to uncover understanding that might have gotten covered over by everyday familiarity" (*ibid*. p77). Benner describes this as moving the interpretation, "between the foreground and background, between situations, and between the practical worlds" of the people within the lived experience being studied (Benner, 1994, p100). Only once the interpreter reaches a clear understanding, of what constitute those lived experiences, will the interpreter leave the *hermeneutic circle*. To Heidegger the concern wasn't in when to leave the circularity of interpretation, but "to come into it in the right way" (2013a [1927], p195), to reveal the hidden experiences as an authentic *Being* so that, to quote Wittgenstein, "light dawns gradually over the whole" (Wittgenstein cited in Dreyfus, 1991, p188).

Llewelyn reminds us that understanding is existential, and that interpretation is grounded in, and an articulation of, what understanding will disclose once meaning is gained (Llewelyn, 1985, p14). Heidegger expresses this circular inter-relationship to understand anything within the world, as happening within an interpreter's *fore-structure*, as any "interpretation which is to contribute understanding, must already have understood what is to be interpreted" (Heidegger, 2013a [1927], p194). So, to enter the *hermeneutic circle* takes an intuitive leap on the interpreter's part (Palmer, 1969, pp87-88; and Heidegger, 2013a [1927], p363), and it is a circle within which the, "existential *fore-structure*" discloses, through interpreting, the interconnections within a lived experience, rather than random knowledge (Heidegger, 2013a [1927], p195).

Calling it a *hermeneutic circle* is not quite accurate, as Llewelyn explains, the movement between interpretation and understanding, is more like a spiral or helix (Llewelyn, 1985, p102). This is because with each interpretative turn within the circle (or down the spiral), the interpreter acquires new knowledge

of the experience, through examining each interpretation made with what is already known. As Ricoeur suggests, the *circle* offers a move "between the two limits of dogmatism and skepticism" (Ricoeur, 1979, p91), and each interpretive turn is a reiterative advancement toward uncovering a final understanding, of what constitutes a person's perception of a lived experience. This, Hirsch explains "can be understood only through the *parts* [that form a lived experience], but the *parts* can be understood only through the *whole* [lived experience]" (Hirsch, 1967, p76). The interaction between the *parts* and *whole* of the experience, creates a shared area for understanding (Palmer, 1969), which constitutes the phenomenological *essence* of the lived experience.

The systematic movement within a *hermeneutic circle* uncovers "commonalities and differences" (Benner, 1994, p104), as seen through the eyes of the individual, affording the interpreter an opportunity to check for "incongruities, puzzles, and unifying repeated concerns" (*ibid*. p113), within the lived experience being studied. This process illuminates what "would have been overlooked in a purely [eidetic] approach" (Lopez and Willis, 2004, p734), as it leads the interpreter through a cycle of "understanding, interpretation, and critique" (Benner, 1994, p120). This is to "uncover naturally occurring concerns and meanings" (*ibid*. p112), to understand a phenomenon as directly as experienced, as directly as possible. Therefore, as the *parts* and the *whole* of the lived experience are being studied, and interpreted, through the circle, any *pre-understanding* can be challenged to avoid biasing the development of new understanding (Benner, 1994, p116). Geertz relates this as a dialectical "tacking between the most local of local detail and the most global of global structure in such a way as to bring both into view simultaneously" (Geertz cited in Bernstein, 1983, p133). From examining the *hermeneutic circle*, this review now turns to Phenomenology as a research methodology, first exploring existing practice-based methodologies used within healthcare research, as an influence to adapt good practice into a *Visual Phenomenological Methodology*.

2.3.6 Hermeneutic Phenomenology as Methodology

To begin this part of the contextual review of Phenomenology, used as a methodology, it is important to start with a quick divergence into healthcare literature. It is within this literature that the implications of practically implementing such a phenomenological methodology, to investigate a lived experience, have already been documented. Dr Hallett, in her 1995 paper Understanding the Phenomenological Approach to Research, offers a very clear overview of the benefits of such a practice-based methodology:

> "The greatest value of Phenomenology for nurse [and design] researchers lies in the fact that it is the only approach available which deliberately takes a participant's [user's] subjective perceptions as its focus. In nursing [Design], it may be argued, these are the perceptions that have the most value and are most worth studying. Phenomenology also offers an approach, which permits the researcher to study phenomena in depth, rather than merely engaging in the superficial analyses offered by more 'conventional' research methods [ethnography, etc.]. In this way, it offers considerable rewards to the researcher who is willing to make the effort to understand it and to tolerate its apparent complexity" (Hallett, 1995).

The annotations, set in bold within square brackets, help to indicate the 'why and how' such a methodology can be fruitful for a practice-based design research, that reveals deeper information about the participants (or users), to improve future designs. A bridge to HCI and Interaction Design, from this nursing literature, comes from two important sources: Moustakas' mainly eidetic *Phenomenological Research Methods* (1994), and van Manen's hermeneutic *Researching Lived Experience* (1990).

Moustakas lists two eidetic methodologies, and van Manen describes a hermeneutic process in great detail, listing five ways to structure a hermeneutic inquiry. These are thematically, analytically, exemplificatively, exegetically and existentially (van Manen, 1990, p172). Moustakas is essentially a Husserlian eidetic phenomenologist, while van Manen is a hermeneutic phenomenologist. Conroy cautions against the researcher conflating these two styles of Phenomenology, as they are "fundamentally different in their orientation" (2003,p2) to each other. In both their books, the two authors present phenomenological methodologies, and different ways to analyse the data that is collected. In Moustakas' case, this analysis leads to description of a phenomenon of a lived experience, whilst in

van Manen's, the analysis is interpretation.

Using two modified forms of analysis, based on the van Kaam or the Stevick-Colaizzi-Keen methods[13] (Moustakas, 1994, pp120-122), Moustakas relies on the eidetic process of "epoche, phenomenological reduction, imaginative variation, and synthesis" (Moustakas, 1994, p84). Whereas, van Manen simply offers a holistic methodological structure, with detailed contextual information, around which a hermeneutic inquiry can be built. Conroy, in her own capacity, also provides the healthcare (practice-based) researcher with a rigorous hermeneutic framework, for conducting a sustained interpretive study of a lived experience from a Heideggerian ground (Conroy, 2003, p11).

To Moustakas, Phenomenology as a methodology to reveal a phenomenon of a lived experience, begins by eliminating "everything that represents a prejudgment, setting aside presuppositions" (Moustakas, 1994, p41). The outcome of this, is to describe (if it is eidetic research), or interpret (if it is hermeneutic research), the lived experience, through revealing structure and experiential *themes*. This ultimately leads to a state of increased understanding. Those healthcare researchers, who employ phenomenological methodologies, do so to increase the chances of each patient's "effort and ability to communicate" their experience (Benner, 1994, p112). To Benner, the use of hermeneutic methods in healthcare research, uses a methodology that empowers patients, within a study, to communicate their own stories as authentically as possible. So, before reviewing the implications of Moustakas' methodology, and then van Manen's hermeneutic approach, it is important to quickly examine what action-based healthcare methods have a bearing on taking a hermeneutic approach.

Karen Parsons, leads the way immediately with a clear account of the use of a *hermeneutic circle* within patient research. In her account to nurse-researchers, she also reminds all hermeneutic researchers that in phenomenologically revealing a lived experience, researchers "must also be aware of what is not

13 The van Kaam methodology will prove to become an important bridge between eidetic and hermeneutic methodologies.

spoken" and what is not explicitly communicated (Parsons, 2010, p64). Silences and body language of participants in a study also reveal valuable information. After all, Lopez and Willis tells us that it is the "interpretation of the narratives provided" of the studied lived experience, that forms the foundation of what is learnt (Lopez and Willis, 2004, p729). As meaning is emergent, and happens within the actual process of interpretation '*as-is*,' within a moment of shared lived experience, Hermeneutic Phenomenology is very effective, "in examining contextual features of experiences that might have direct relevance to practice" (*ibid*. p734), and "essential for the implementation of holistic, empathic, and individualized" practice (Earle, 2010, p294).

Bernstein, following a Gadamerian[14] line, concurs with the root of Heideggerian Hermeneutic Phenomenology, when he agrees, that the "type of knowledge and truth that hermeneutics yields is practical knowledge and truth that shapes our praxis" (Bernstein, 1983, p150). As van Manen explains, every experience on examination has "structural or thematic aspects" (1990, p78), which give meaning to it through what a person saw, thought, felt or did. Moustakas also agrees on this, but hermeneutic interpretation uses the resulting understanding, relating it back to the lived experience, in order to uncover further new insights (Parsons, 2010), that had not immediately revealed themselves.[15] However, these *thematic* aspects (or *themes*), which reveal aspects of a *whole* lived experience cannot, on face value, possibly "capture the full mystery of this experience" (van Manen, 1990, p92). van Manen describes such an experiential *theme* as a focus point, a simplification of a certain experiential moment, which shapes the shapeless notion of a moment, through insightful discovery of its structure (*ibid*. pp87-88). A *theme* therefore, "only serves to point at, to allude to, or to hint at, an aspect" of the studied lived experience (*ibid*. p92). Therefore, it is through employing a phenomenological

14 Hans-Georg Gadamer (1900–2002), a hermeneutic philosopher, and former PhD student supervised by Heidegger, who saw "meaning as experience, a palpable event that takes place in time and between subjects" (EGS, N.D.b).

15 This circularity within interpretation, can be explained by a metaphor of a sea wave rolling up a beach. To move forward, the wave returns to the body of water in order to advance and reach further up a beach. The interpretation [the wave], relies on the structure of the studied experience [the beach], reducing all the possible meanings down [as the wave creeps up the beach it returns less and less to the body of water], into an '*essence*' of a phenomenon [the metaphorical high-tide mark — the apex of its course], which is "never simple or one-dimensional" (van Manen, 1990, p78).

practice-based methodology, that the researcher can get closer to revealing the lived experience than other qualitative methodologies (Hallett, 1995). These other qualitative methods, seek to examine lived experience, by 'looking in,' whereas, Phenomenology is concerned with getting inside the lived experience, in order to 'look out' by first exploring these *themes*.

So in order to 'look out' from the perspective of the individual, the hermeneutic researcher has to examine the "appropriateness of each of the *themes* by asking: 'Is this what the experience is really like?'" (van Manen, 1990, p99). This is in order to ,"discover aspects or qualities that make a phenomenon what it is and without which the phenomenon could not be what it is" (*ibid*. p107). Moustakas describes a methodology of clustering these core thematic aspects of a *whole* lived experience (Moustakas, 1994, pp120-121), to eliminate those *themes* that are not authentically felt, within the same experience by other people. The *themes* that remain are classed as *invariant constituents*, meaning units that structure the meaning of what is interpreted (van Manen, 1990, p78).

In both the above cases, whether Moustakas' eidetic approach or van Manen's hermeneutic, the established approaches all rely on a process that reveals, only through writing and re-writing, the revealed facts in order to gain the required depth of understanding of the studied lived experience. The dissemination of their conclusions is also in written form. But this is not necessary the only way to perform hermeneutic phenomenological research. To Harman hermeneutics offers us the ability to, *within-the-world*, "convert the sheer impact of the world into pictures of simulacra" (Harman, 2007, p241). The visual potential that Harman raises within Hermeneutic Phenomenology has still, to date, been underdeveloped. Back in 1994 Benner pointed out that:

> "visual data are central to many lines of inquiry amenable to interpretive Phenomenology, particularly social practices, embodied skills, and the study of lived experience. Cultural anthropologists have long used visual data in their interpretive studies, and that body of literature can enrich written and verbal textual sources" (Benner, 1994, p120).

This lack of development from the textual, toward the visual, over the last twenty years, to reveal and interpret the core *themes* of a studied lived experience, has lacked one important influence — that of synthesis between a

hermeneutic phenomenological methodology with *Visual Communication*.

Through such a synthesis, *Visual Communication* can, through what Palmer calls a primary act of ontological interpretation[16] (Palmer, 1969, p129), expand the phenomenological methodology to explore the implications of how to reveal the emotional qualities in a way to inspire designers (Kolko, 2010, p41). Visual stimulus is a valued inspirational source for designers, and can be described as "inspirational data" (Gaver, 1999, p25), which "plays a critical role in translating research into valuable design criteria" (Kolko, 2010, p50). Kolko refers to what is generated as 'sensory data' (*ibid*. p41) Like any qualitative methodology, Hermeneutic Phenomenology uses a theoretically orientated approach, as part of its research data gathering phases. One such method that is useful to designers is a 'cultural probe,' which Bill Gaver developed as part of a design research project in the late 1990s. So, it is relevant to quickly explore this method, as it provides a valuable sensory data collection tool for the design-based phenomenologist.

2.3.7 Cultural Probes in Hermeneutics

Although in Phenomenology textual description, or explanation of the interpreted meaning of a lived experience, has long been sufficient to researchers (especially within healthcare research), such textual outcomes are not sufficiently useful to visually creative designers who benefit from visual stimuli. Gaver describes such visual stimuli as inspirational data, and with his team in 1999, he developed a new qualitative tool to create such sensory data. Called a '*Cultural Probe*,'[17] the qualitative tool would help a design team, to reveal "features of an experience that would be overlooked in a purely descriptive approach" (Lopez and Willis, 2004, p734).

A *Cultural Probe* is a kit of inspirational materials (see Fig. 2.17), designed to elicit visual (as well as some textual) "inspirational responses" from the people

16 An inquiry into the act of what Heidegger calls *Being* (Palmer, 1969, p129).

17 The concept of a *Cultural Probe* has grown, morphed and expanded into specific qualitative tools, which go by names such as *Informationa*l Probes, Mobile Probes, Technology Probes, and Empathy Probes (Bernhaupt *et al.*, 2007, p607), and are designed to elicit different types of data, from different research situations. But Gaver is critical of those who have adapted the idea, and have since made it more analytical. He warns that in making it too focused on specific analysable results, the designer-researcher loses the rich insights into a subject's experience.

Fig. 2.17: (1) A *Cultural Probe* (2) Tasks (3) Disposable Camera (4) Journal.

whose lived experiences are being studied, providing the design team with visual "fragmentary clues about their lives and thoughts" (Gaver *et al.*, 2004, p53). Finnish academic, Tuuli Mattelmäki, provides four powerful reasons for applying probes. They are: to provide inspiration, to seek information, to gain participation and to provoke dialogue (Mattelmäki, 2006, p58). Probes are not designed to be used in front of a designer-researcher, but like inter-planetary space probes, "cultural probes are 'sent-out' by researchers and return fragmentary data over time" (Kjeldskov *et al.*, 2004, p4).

Crabtree sees probes as being, "the first stage in an ongoing and difficult process of design" (Crabtree, 2003, p9), providing useful visual insights, self-created by the studied participants, that can then be explored by the designer-researcher, through their design phase. When research participants are asked "to verbalise experiences, they become more aware" of the experience (Mattelmäki, 2006, p128), the designer-researcher is interested in the participant communicating their awareness, through responses to the probe's tasks, in ways they would not do if asked through other methods. The inspirational data these probes return is visceral, raw, honest, un-comprehensive and un-

scientific, and so a designer has to interpret the data from the perspective of their target audience, to understand a lived experience (*ibid*. p88), in order to design future interaction designs, to best fit that very experience.

The probe is a valuable tool that can be adapted into a phenomenological methodology. Hemmings suggests that within each probe, each item it contains, "should be capable of invoking a different form of response that fits within a category of acceptable emotional responses," within the context of the studied lived experience (Hemmings *et al.*, 2002, pp44-45). Each item, or task, in a probe is there to elicit "inspirational responses from people" (Gaver *et al.*, 2004, p53) for it to be useful. These responses are in no way comprehensive information about an individual; instead, Gaver sees probes as producing dialogue between the designer-researcher and participants (*ibid*. p55). The adaptation of probes, to work within a phenomenological methodology, is an immediate example of where visual communication techniques are utilised.

2.3.8 Phenomenology of Signification

To conclude this review section on synthesising Hermeneutic Phenomenology, through Pragmatism, into a phenomenological methodology, which designers can employ to improve their design process, rests on one final theoretical influence. This is semiotics — the language of Signs. Instead of taking a Saussurean[18] approach to semiotics, the author takes a pragmatist perspective, based on the Semiosis of Charles Sanders Peirce (1932, 1933, and 1934). Peirce's premise was that everything can be seen as a Sign, and the meaning of what is signified, is emergent within the context it is found. Shelaph O'Neill, in his 2008 book *Interactive Media: The Semiotics of Embodied Interaction*, uses the term phenomenology of signification (p81) to consider how semiotic Signs are actively experienced in designed interactions. In doing so, he builds his thesis upon a Peircean pragmatic approach to argue that the communication of a call to action, within an interaction, is naturally mediated, and if mediated then it is semiotically communicated. In this way, borrowing

18 The semiotics of Ferdinand de Saussure, was a European linguistic tradition of understanding the semiotic Sign, by hunting for its meaning (Jappy, 2013, pX).

Bergström's *Visual Communication* term of a *perspective of reception* (Bergström, 2008, pp32-33), a person (or ***The Receiver***) reacts interpretively, using their feelings and perception to understand what's being communicated to them, within a moment of a lived experience.

Therefore, this provides a bridge between *Visual Communication* and a phenomenological-pragmatist methodological synthesis, to understanding a lived experience. In which, semiotics plays an important part in structuring an interpretation, of how a lived experience WAS experienced. It has been established, that a *Visual Communication* designer operates from a perspective of proximity, to the intended visual communication (see Fig. 2.4), shaping its semiotic attributes to maximise the design's reception. This influences people's own senses and emotions, and incites a desired change in behaviour. Through synthesising Peircean visual semiotics, within a phenomenological framework, O'Neill gives dynamism for *Visual Communication* to embrace, what Dunne calls the, "*aesthetics of use*" (1999). This takes *Visual Communication* further into a phenomenologically defined world, where the moods, emotions and behaviour come to the fore.

In this synthesis, Pragmatism provides a practical framework on which the semiotic communication of emergent meaning, from the interrelationship between the person "connected to the viewpoints, interactions, histories, and local resources available to those making sense" of the experience (Harrison, 2007, p7), can be structured. From this framing, Hermeneutic Phenomenology is then used to interpret what happened, from the perspective of the person, communicated semiotically, and visualised as inspirational data, in a format that *inspire*s designers of future interactions, to learn from the actual experiences of others. Hirsch does remind the interpreter that, "the nature of interpretation is to construe from a sign-system something more than its physical presence" (1967, p75), and through a phenomenology of signification, using Peircean semiotics, the author argues that a *hermeneutic-semiosis* can be developed.

This contextual review section reviewed phenomenology, experience and interpretation from, not only a philosophical perspective, but also from a pragmatically practical perspective. Both Husserl's eidetic, and Heidegger's hermeneutic schools of phenomenology, were reviewed. Through the work of Dourish (2004), van Manen (1990), and others it became clearer that the interpretive form of phenomenology (hermeneutic) was the most pertinent to the author's thesis. Through briefly examining how phenomenology has been used by design disciplines, it became clear that a more pragmatic, practical application of Hermeneutic Phenomenology, as a practice-based methodology, would be more desirable (Wang and Wagner, 2007). Ihde's Postphenomenology (2009) provided some useful guidance on how Pragmatism can support phenomenology. The term 'lived experience' (van Manen, 1990) proved a useful term to describe the structural, or thematic phenomenological aspects of any experience.

Lived experience helps to define, within any interactive experience, what can be interpreted, to explain what was seen/felt/done. It was a helpful term, through which to review what Heidegger ontologically referred to as Dasein (Being-there), and Being-in-the-world. This being the state of personal existence, from which an individual person constructs their meaning, of their own existence in the world (Dreyfus, 1991). Academics from nursing (Hallett, 1995; Conroy, 2003; Lopez and Willis, 2004; Earle, 2010; Parsons, 2010), who had established a precedent of applying Heideggerian methodologies, within practice-based nursing research, proved useful to understand a pragmatic application of phenomenology. This research revealed the use of Heidegger's hermeneutic circle as a method for structuring interpretation (Conroy, 2003; Llewelyn, 1985). Both Moustakas (1994), and van Manen (1990), helped to provide examples of how a phenomenological methodology can be used to understand such a lived experience. Then, returning to a designer-focused exploration of

how sensory data (Kolko, 2010) could be collected by a researcher, cultural probes were briefly examined (Gaver et al., 2004; Mattelmäki, 2006). This was to understand how they may be eventually applied to a phenomenological methodology, to aid how to see a lived experience from Being-in-the-world. Finally, the concept of a phenomenology of signification (O'Neill, 2008) was examined in order to begin to understand, how such a lived experience, may be visualised. This research pointed to the pragmatic semiotics of Charles Sanders Peirce. At this point, the author discusses a new synthesis called hermeneutic-semiosis. This is raised at this point, so that in the final section of this contextual review, the literature surrounding the development of such a hermeneutic-semiosis can be explored, focusing itself on Peirce's Semiosis.

2.4 Semiosis

In this final section of the contextual review the focus returns to the visual, after exploring the research into interaction design, HCI, Pragmatism, and Hermeneutic Phenomenology. The previous section discussed the concept of phenomenology of signification within interaction. This, in turn, revealed the significance of the semiotics of C.S. Peirce, a pragmatician who had strong connections to a phenomenological understanding of the interpretation of Signs. As has been understood earlier in this chapter, semiotics is an integral part of Visual Communication. This section reviews pragmatic semiotics, into what Peirce calls Semiosis, to develop a strong understanding of this lesser known form of semiotics.

Firstly, semiotics itself, is defined by reviewing four terms that are used that confuse the non-expert: Semiotics, Semiology, Semeiotics and Semiosis. The Structuralist form of semiotics, created by Saussure, is briefly introduced to set the ground for a review of Peirce's Semiosis. Once achieved, the three phenomenological states, in which the determination flow of Peirce's Semiosis happens, are explored. The triadic nature of Peirce's semiotics is reviewed, by

looking at three trichotomies, and the three subclasses, contained within each trichotomy in order to understand how Peirce defines ten classes of semiotic Sign. These classes are dependent upon the relationships between an Object that is to be communicated, how it is represented, and how it is interpreted. In order to understand how the author's new synthesis of hermeneutic-semiosis can be realised, two of the ten classes of Signs are reviewed in more detail. The two Signs are selected based upon how they relate to the thesis of using Visual Communication to reveal the essence of a lived experience.

2.4.1 Semiotics, Semiology, Semeiotics or Semiosis?

The final part of this contextual review will examine the pragmatic semiotics of Charles Sanders Peirce (1839-1914), and how his theory on Semiosis (or sign-action), is relevant to a synthesis with Phenomenology. But before this particular field of semiotics is explored, it first makes sense to ground this within an understanding of what semiotics is, considering there are at least four similar terms that quickly begin to confuse the non-semiotician.

Semiotics

Semioticians[19] agree that there are two fathers of what is referred to as 'semiotics' (Ashwin, 1984; Chandler, 2007; Crow; 2010; Jappy; 2013). Peirce is one of them, while the other is the Swiss linguist Ferdinand de Saussure, and both developed their own semiotic theories on either side of the Atlantic almost at the same time (pre-WW1), but from different roots. The former pragmatically, and the latter from a structuralist perspective. The semiotician, and author Umberto Eco, explains semiotics as being, "concerned with everything that can be taken as a Sign" (Eco 1976, p7). He means that once a desired signified meaning is successfully interpreted by ***The Receiver***, it becomes a Sign, signifying something more than its immediate denotational meaning. Hall (2006) presents a very useful explanation, of how the meaning-

19 Chandler notes that those who describe themselves as semioticians "include linguists, philosophers, psychologists, sociologists, anthropologists, literary, aesthetic and media theorists, psychoanalysts and educationalists" (Chandler, 2007, p4).

journey of a semiotic Sign works, within a communicational situation, up to the point of reception.

The semiotic meaning-journey is dependent upon several steps (see also Fig. 2.18), and can be understood thus: ***The Sender*** [the designer] > ***The Intention*** [what needs to be communicated] > ***The Message*** [the coded signified meaning in each semiotic Sign] > ***Transmission*** [how each Sign will mediate within a communicational situation] > ***Noise*** [the internal and external social-cultural factors that interfere with the meaning from being understood] > ***The Receiver*** [the person the Sign is communicated to] > ***The Destination*** [where the signified message is received] (Hall, 2006, p8). Any visually communicated piece of design works, to some degree, on a semiotic level that is "encoded by the emitter [designer] and decoded by ***the Receiver*** [the audience]" (Ashwin, 1984, p43). The shaping, and selecting, of the most apt visual combination of elements, is important in order to transmit any intended message. This message, or communication, to ***The Receiver*** (a specific targeted audience) is usually made within a specific *socio-cultural* context, as images that "can only be understood through their relationship to cultural patterns of making meaning" (Griffin, 2002, p32). Designers[20] structure these pictorial elements (Nemeth, 2003, pp94-95) in a way that is coded in the form of a semiotic Sign. But this deeper signified meaning needs to be in some way an agreed meaning,[21] which is mediated through a socially constructed visual grammar of Signs (Shusterman, 1991, p122) The audience will need to understand these Signs, that need to take "the form of words, images, sounds, gestures and *objects*" (Chandler, 2007, p2).

Chandler states that the term 'semiotics,' (as a study of the Signs we use to communicate deeper meanings), has now become an "umbrella

20 The designer's process to shape the form and context of the communication happens to the outsider in a vacuum of internalised creativity, but to a designer it is an exploration of possible visual elements. Designer Neville Brody calls this an 'exploratory space', (cited in Baldwin & Roberts, 2006, p49) within this 'exploratory space' a designer selects a level of appropriate intervention in transmitting the message to strengthen and not weaken the message. The designer's skill and ability to do this effectively is more complex than it first appears, and less self-serving and subjective the more it is understood. It is true, to a degree, that to some designers their work is implicit and creatively intuitive and devoid of theoretical rules; but the truth is deeper than this. Although designers traditionally have focused upon practice, there is a theoretical basis to their work that maximises the transmission of the central message within their design solutions.

21 This sense of an 'agreed' meaning to a Sign is based on the ontological states that Heidegger describes as *fore-having*, foresight and *fore-conception*.

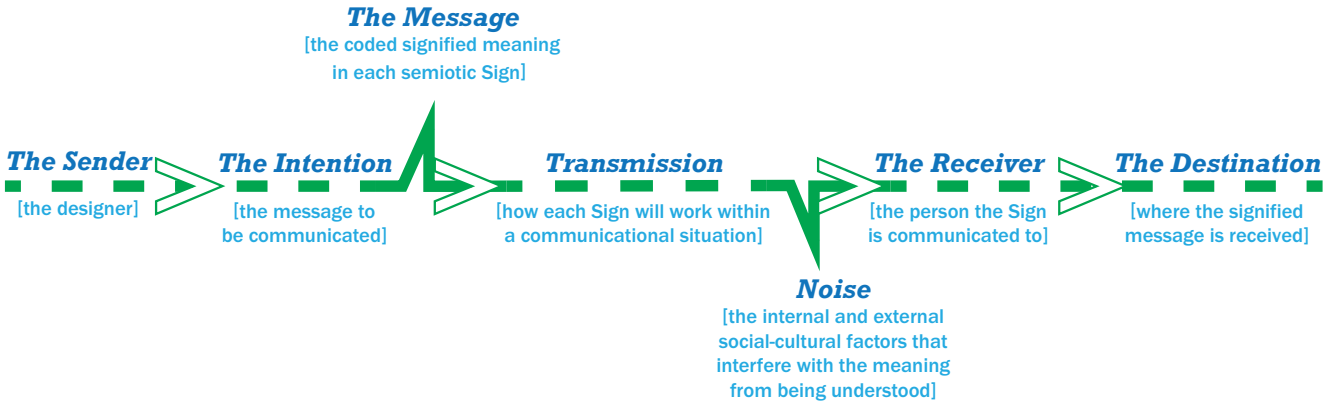


Fig. 2.18: The Semiotic Journey.

term" (2007, p3) that covers both the structuralist, and pragmatic, forms of semiotics (Ashwin, 1984, p43). Although many semioticians use very dense theoretical terms that have a habit of excluding laypeople, Chandler says that semiotics is "an approach which focuses on, and problematises, the process of representation" (Chandler, 2007, p10). It is this very fact, that a semiotic Sign is a form of communication, that uses one thing to stand in for another thing to facilitate meaning. Saussure's structuralist work, based from a ground of linguistics, was named Semiology (Crow, 2010, p34). The pragmatist Peirce, named his area of interest, semiotics. He originally referred to it as semeiotics. Although this thesis deals with a pragmatic semiotics, it is still worthwhile to quickly outline the Semiology of Saussure, to differentiate between the two different ways of understanding communication through Signs.

Semiology

Semiotics, from a Sausserian perspective as Semiology, is a science of Signs, which explores what constitutes them, and what laws govern them (Ashwin, 1984, p43). Saussure placed his version of semiotics into a form of psychological theory (with linguistics as a subfield of psychology), making the paradigm for processing Signs, one based upon the spoken language (de Waal, 2013, p75). He was concerned with a conception of meaning from Signs, which was more "structural and relational than referential" (Chandler, 2007, p18), which lay in systematic relations, rather than "the inherent features of signifiers or any reference to material things" (*ibid*. p18). This relationship was coded in a Sign

in a dual way, between what is signified from a signifier. The signifier, as Hall describes, is what you see that has a direct connection back to what it means. This is what is read, to understand what is signified (2006, p10). This dyadic coding between signifier and signified, of how meaning is communicated is, from Saussure's linguistic perspective, arbitrary. His "acoustic images," as his Signs can be called, remain "unreceptive to natural Signs - situations where something extra- linguistic is trying to tell us something" (de Waal, 2013, p76). Whereas, in a pragmatic model of semiotics, the classification of a Sign is approached in a logical way.

Semeiotics and Semiosis

Peirce himself was a philosopher, rather than a structuralist linguist, and his semiotics (Semeiotics) "emerges from pragmatist logic of reasoning," and can be seen as a formalised doctrine of Signs, through a manifestation of logical thinking (Ashwin, 1984, p43). Peirce states that, "our knowledge is acquired and shared with others in the forms of Signs" (Jappy, 2013, p3), and that this human knowledge is contingent on the acquisition, and dissemination of knowledge through Signs.[22] The original, but archaic form of Peirce's Semiosis, he named 'Semeiotics,' a name derived from the Greek word 'semeion,' meaning sign or signal (de Waal, 2013, p73). He defines a semiotic Sign as a form of interpretive communication, where the Sign stands in some respect for something (signifying a concept or an idea), to somebody (***the Receiver***), in a meaning-making process (Peirce, 1932, p135; and Jappy, 2013, p3). Jappy argues, in his book *Introduction to Peircean Visual Semiotics*, that Peirce's form of semiotics is more visually based. Peirce, although a pragmatist, directly founds his form of semiotics on his conception that Phenomenology is the "study of whatever can be 'present to the mind'" (Jappy, 2013, p60). This focused on how the action of the semiotic Sign worked, which Peirce called sign-action, or Semiosis.

Crow (2010) confirms that even in the simplest understanding of semiotics,

22 In this section, when a semiotic Sign is referred to it will be emphasised using a capital 'S' referring to it as a proper noun.

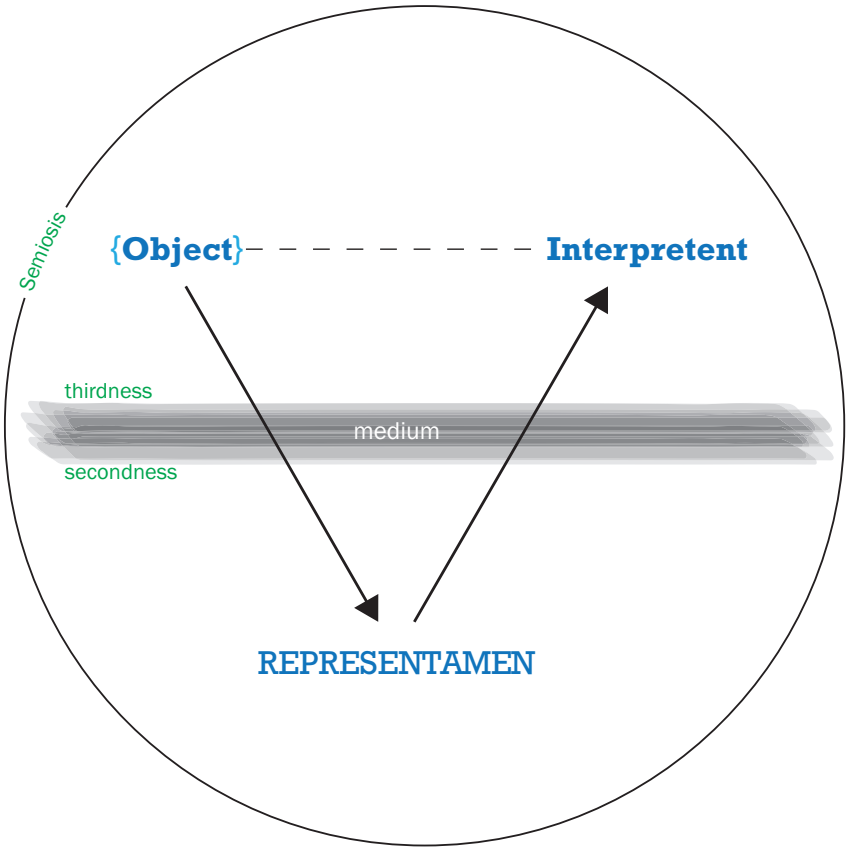


Fig. 2.19: Semiosis - Determination flow and perceived medium.

there are three main aspects that concern a semiotician, "the Signs themselves; the way they are organised into systems and the context in which they appear" (p14). In Peircean Semiosis, rather than the dyadic structuralist model from Saussure, the full power of this triadicness of semiotics is unleashed. Peirce describes this as the Sign's sign-action, which Crow further defines as "the transfer of meaning" (Crow, 2010, p34) from within the process of interpretation. Semiosis is "triangular and deals with the Sign itself, the user of the Sign and the external reality - the *Object* - referred to by the Sign" (Crow, 2010, p22), and comprised of three relations: [1] the Sign's form (a *Representamen*[23]); [2] what the Sign refers to (an *Object*[24]); and [3] the interpretation made of the Sign

23 The *Representamen* is a correlate that stands in relationship to the *Object* in the mind of the interpreter in a phenomenological state of *Firstness*. Peirce defined this term as "something which stands to somebody for something in some respect or capacity" (Peirce, 1932, [CP2.228] p135) as it is the signifier of the *Object* that leads to an interpretation. The *Representamen's* relationship to both the *Object* and *Interpretant* is triadic and its resemblance to the *Object* is what creates the *Interpretant*.

24 As a *Representamen* signifies through resemblance a connection to an *Object* that is understood by the interpreter that *Object* itself exists in a phenomenological state of *Secondness*. The *Object* can be described as being immediate within the Sign as a hint to the existent *Object* (real or fictional) outside the Sign. Peirce describes the *immediate Object* as the "*Object* as the Sign itself represents it" (Peirce, 1933, [CP4.536] p422). This is intrinsic to the Sign and can be understood using an analogy of a photograph. The *Object* in the photograph is intrinsic to the photographic image and immediate to the viewer; while the original *Object* that is represented in the photographic image exists beyond the photograph, as it is a dynamic entity and extrinsic. So in order to "determine the Sign to its *Representation*" (ibid. [CP4.536] p422) the existent *Object* is described as a *dynamic Object*. This is "an *Object* of experience, an existent entity" (Jappy, 2013, p166) that can be a real thing or, more importantly, a concept that needs communicating.

(an *Interpretant*[25]). Munday (2007) explains how Peirce's Semiosis works, by providing a useful metaphor of a labeled opaque box, containing an *object*:

> "The first thing that is noticed (the *Representamen*) is the box and label; this prompts the realization that something is inside the box (the *Object*). (...) We only know about the *Object* from noticing the label and the box and then 'reading the label' and forming a mental picture of the *Object* in our mind. Therefore the hidden *Object* of a Sign is only brought to realization through the interaction of the *Representamen*, the *Object* and the *Interpretant*" (Roderick Munday cited in Chandler, 2007, p31).

What Munday's metaphor for Semiosis describes is sign-action from "the *Object* to the *Interpretant* through the mediation" of the *Representamen* (Jappy, 2013, p25). This determines the interpretation of what is signified by the Sign. The first relation of the Sign's form (the *Representamen*), determines the third relation of the interpretation (the *Interpretant*), that in turn has some quality or existential reference to the second relation (the *Object* that is being referred to in the mind of the interpreter). This is what is called a determination flow, and this will be discussed alongside three phenomenological states, that Peirce uses to describe the medium in which they communicate, in the next section.

2.4.2 Determination Flow and Peirce's 3 Phenomenological States

The semiotic process of sign-action, which Peirce named Semiosis, is an interpreted triadic determination flow between three correlates of a *Representamen*[26] (1st), an *Object* (2nd), and an *Interpretant* (3rd). This is a determination flow of signification (see Fig. 2.19), from "the *Object* to the *Interpretant* through the mediation of the [*Representamen*]" (Jappy, 2013, p25). To understand how Semiosis works, it is necessary to go a bit deeper into the triadic division of signification, in order to grasp the richness of this pragmatic

25 The *Interpretant* is not to be confused with an interpreter – it is the effect the Sign produces. The actual act of signification, constructs meaning in the mind of the interpreter that the *Object* makes through the medium of the *Representamen*. The construction of meaning exists in the phenomenological state of *Thirdness* and its constituent phases of signifying the meaning follows three important forms. Firstly, the immediate *Interpretant* means that a Sign must first be intrinsically interpretable for it to be a Sign. Secondly, as a *dynamic Interpretant* it must have some mediated effect upon the interpreter who reacts by forming an interpretation of the signified meaning. Finally, as a *final Interpretant*, a Sign needs to endow itself with a potential for continuity of communication (Jappy, 2013, p17 and Peirce, 1932, [CP4.536] p??). The *immediate Interpretant* is intrinsic to the Sign and exists within it as an impression of quality that affords the Sign's potential for interpretation. For a Sign to be interpreted it must be able to be perceived as interpretable and this interpretability is an abstracted state of 'THERE' which an *immediate Interpretant* provides. The *dynamic Interpretant* is an actuality, a "mediated Interpretant" (Jappy, 2013, p17) a single interpreted 'event' that is constructed from the Sign. The *final Interpretant* is "endowed with a potential for continuity" (ibid. p18) as the Sign's meaning becomes agreed and set. If the *immediate Interpretant* is intrinsically interpretable through the image which it "forms in our minds" then the *dynamic Interpretant* is a perceivable reaction to the Sign, based on what we "feel and do" (ibid. p187) when we interpret the Sign through the existent image that is presented. The *final Interpretant* is the most complex of the subclasses as it isn't affected by fluctuations in contextual meaning through changes in socio-cultural trends. Instead a *final Interpretant* "is the one Interpretative result to which every Interpreter is destined to come if the Sign is sufficiently considered" (Peirce [1909] cited in a letter to Lady Welby, The Commens Dictionary of Peirce's Terms, 2003).

26 The *Representamen*, Crow says, can "sometimes known as a sign vehicle" (Crow, 2010, p33).

semiotics and how it will synthesise into my developing thesis. These three phenomenological states of *Firstness*, *Secondness* and *Thirdness*, are important within the determination flow of Semiosis, as Signs are "communicated through a perceivable medium" to be interpreted (*ibid*. p7). That medium is indicated in Fig. 2.19 as a horizontal line above which is the "the world of thought and desire associated with *Object* and *Interpretant*." Below the line, "the physical world of the medium through which every Sign has to be communicated" (*ibid*. p18) is indicated.

The state of *Firstness*, can be understood, as a state of *Being*,[27] based on a perception of "logical possibility, likeness or the quality of appearance" (Huang & Chuang, 2008, p5). Peirce likened this to effort and resistance, covering "qualities, properties, feelings" (Jappy, 2013, p66). *Secondness* can be understood as a state of *Being*, based on a perception of "actual facts, existence or existential relations" (Huang & Chuang, 2008, p5), which Peirce likened to freedom and independence, covering "individuality, fact, existence and brute action" (Jappy, 2013, p66). Finally, *Thirdness* can be understood as a state of *Being*, based on a perception of "general laws, rules, habits, certainty or reasoning" (Huang & Chuang, 2008, p5), which Peirce assimilated to generality, mediation and continuity, covering "system, intelligence, thought, and, of course, Signs" (Jappy, 2013, p66). Crow emphasises that Semiosis is an "active process between the Sign and the reader of the Sign," and that the "meaning of the Sign will be affected by the background of the reader," in a state of *Thirdness*. As "their background, education, culture and their experiences will all have a bearing on how the Sign is read" (Crow, 2010, p34).

To help summarise the important phenomenological relationship, of each Peircean state, to the sense of Heidegger's state of *Being*, Jappy helps to aid the understanding of Semiosis:

> "*Firstness* covers potentialities such as properties, qualities, etc., that is entities which have no independent existence; *Secondness* corresponds to individuals and the individual facts concerning them, whereas *Thirdness* corresponds to generalities, that is entities which transcend the individual and his existential world" (Jappy, 2013, p74).

27 *Being* – Heidegger's term to describe the existential state of *self within-the-world* (*Dasein*).

The Pierce Theorem, as described by Cornelis de Waal in his book Peirce: *A Guide for the Perplexed* (2013), states that, "it is impossible to define triadic in terms of simpler ones (e.g. dyads)," and that "we cannot prescind *Firstness* from *Secondness*, as no second is possible without a first to which it is a second, and that *Thirdness* cannot be prescinded from *Firstness* and *Secondness*, as *Thirdness* is a mediation between two" (p42). To clarify this further, it can be said that the state of *Firstness* encapsulates the 'experience' as a dominant state. We have an experience that we identify by its phenomenological properties and qualities. In consciously identifying an experience, we immediately enter a state of *Secondness*. This is an immediate phenomenological intrusion, created by wanting to define and understand the experience. By making a connection between experiential properties and qualities, in order to define the experience, an act of mediation takes place through a state of *Thirdness* (*ibid*. p43).

In Semiosis, the triadic determination flow between *Representamen*, *Object* and *Interpretant*, shapes a powerful sign-action, which combines "simultaneously in the process of signification and interpretation" (Jappy, 2013, p12), to form the semiotic Sign. As has already been seen, a Sign "is something that denotes an *Object*; the *Object* is anything that can be thought; the *Interpretant* is the (mental) effect of the Sign" (Chow and Jonas, 2010, p13). How the *Object* and the *Interpretant* are in a state of *Thirdness* is clear, as for both to be communicated in the mind of ***The Receiver***, the piece of visual communication has had to be mediated through the Sign. The Sign itself, which has been created to communicate a meaning, and therefore has brought together properties and qualities to communicate that meaning, can only phenomenologically exist in a state of *Secondness*. This is because the message it needs to communicate existed first. Phenomenologically, the potential message in a state of *Firstness*, immediately requires a second thing to communicate it.

What is crucial to grasp at this stage, is that although on face value Semiosis appears to be quite complexly constructed, it will be pivotal in the development of a phenomenological *Visual Communication* methodology.

To explore how Semiosis will synthesise into such a methodology, then it is important to examine the *Representamen*, *Object* and *Interpretant* in more depth. A semiotic Sign, from a Peircean view, has one representation (*Representamen*), two forms of the *Object* (*immediate* and *dynamic*), and three constituent phases of the *Interpretant* (*immediate*, *dynamic* and *final*). Each Sign has an internal triadic division of subclasses. These subclasses interact in specific combinations, which in turn forms ten classes of Peircean semiotic Sign (will be shown in Fig. 2.22). Crow succinctly sums these Sign subclass divisions up as:

> "A *Representamen* (sometimes known as a Sign vehicle) and so can be classified as a qualisign, a *sinsign* or a *legisign*. Every Sign also has an *Object* and can be classified as an icon, an index or a symbol and, similarly, as every Sign has an *Interpretant* it can be classified as a rheme, a *dicent* or an argument. All Signs then become classifiable as combinations of each of their three elements" (Crow, 2010, p33).

It is from these combinations that mathematically, and through pragmatist logic, Peirce forms ten semiotic Signs. These range from mere qualities as a Sign, to a definitive agreed communicated meaning of a Sign. But before these ten Sign classes are reviewed, it first is important to examine, in more detail, what these subclasses that Crow has mentioned are.

2.4.3 Peirce's Triadic Divisions of a Sign

First Trichotomy: The Representamen.

According to Peirce, in his 1903 revision of his writings, a semiotic Sign is represented either through a quality (such as colours, feelings, tone), a one-off example that embodies it, or a general 'law' comprising of a significant *socio-culturally* agreed contextual meaning. This forms Peirce's first trichotomy of Signs, which define the triadic hierarchy of subclasses of the *Representamen* (Peirce, 1932, [CP 2.243] p142). The first, and lowest subclass, is a *qualisign* that operates in a phenomenological state of *Firstness*. This is "a quality which is a Sign" (*ibid*. [CP 2.244] p142) and, as a quality, a *qualisign* has "no independent existence and are only to be perceived" when connected with an *Object* (Jappy, 2013, p32). In other words, this only becomes a Sign, for an *Object*, when read as a Sign. In fact, Jappy defines a qualisign as, "qualities such as colours, feelings,

qualities of sound, etc., that are embodied in physical objects and function as Signs [with] no independent existence and are only to be perceived inhering in some existent *Object*" (*ibid*.). An example of this is the use of the colour red in a worker's rights protest (see Fig. 2.20a).

The second classification is a *sinsign*. This operates in a phenomenological state of *Secondness*, which is "an actual existent thing or event which is a Sign" (Peirce, 1932, [CP 2.245] p142). The syllable 'sin' in *sinsign*, is taken to mean, "being only once" (*ibid*.). Chow and Jonas help explain a *sinsign* further, as it being "determined according to action and reaction in the relationship" (2007, p14) to the *immediate Object*. Pierce describes a *sinsign* as being something like a sketch, a photograph, a cry (Jappy, 2013, p32), which represents the meaning in a one-off way. It is an immediate representation of the *immediate Object*, within a particular type of sketch or photograph, that hints at what existed. A visual example for a *sinsign* is a 'one-off,' as a quick illustration or snapshot of something that exists, includes such things as the late Ronald Searle's WW2 prison camp sketches (see Fig. 2.20b).

The third, and highest subclass, is a *legisign*. This operates in a phenomenological state of *Thirdness*, which is pervasive in "our sophisticated contemporary cultures" (Jappy, 2013, p32). Peirce is quite careful in how he defines a *legisign*, "A *Legisign* is a law that is a Sign. This law is usually established by [people]. Every conventional Sign is a *legisign* [but not conversely]. It is not a single *object*, but a general type which, it has been agreed, shall be significant" (Peirce, 1932, [CP 2.246] pp142-143). So how a *legisign* is interpreted, and communicates what is signified, "depends largely upon personal experience of the world and 'collateral,' that is independent, knowledge of the *Object* determining the Sign" (Jappy, 2013, p48).

All conventional signs, such as road, street and other wayfinding signs, in the world are *legisigns*. But *legisigns* are more than conventional signs. The central idea of what a Sign means, is a *socio-culturally* agreed meaning, which this type of Sign represents. So much so, that every time that Sign is seen, it is

Fig. 2.20: Examples of a Qualisign [a], a Sinsign [b], and a Legisign [c].

always an instance of a *Replica* of the original Sign, as the original is nothing more than an agreed meaning (or law). Thomas Short, a Peircean scholar, sums this up as, a "*legisign* is a *legisign*: something to be replicated" (cited in Lefebrve, 2007, fn#39, p236). Through an agreed meaning, a *legisign* operates in state of *Thirdness* as it is mediation, between an agreed meaning and its communication. A visual example for a *legisign* would be something like the humble toilet Sign, as it's meaning is understood around the world, even if its *Replicas* vary on an individual basis (see Fig. 2.20c).

Using the ubiquitous toilet Sign, as an example, also draws the attention to the next trichotomy of subclasses. The toilet Sign itself, can be described as a *symbolic* image of the *Object* it represents, as it uses two *iconic* representations of a male and female human being, to symbolically represent gender-specific toilet facilities (*Object*). All three trichotomies, and each set of three subclasses within them, are inter-related, nesting within each other based upon their phenomenological states. In the case of the subclasses of the *Representamen*, *qualisigns* are nested within a *sinsign*. This *sinsign*, in turn, is used as a *Replica*, as an instance for communicating the more complex *legisign*.

Second Trichotomy: The Object

The *Object*, as has been seen, has two-forms: an intrinsic form within the Sign, called the *immediate Object*, which hints at the Sign's *Object* (e.g. toilet facilities); and an extrinsic form, called the *dynamic Object*, which is an "existent entity" (Jappy, 2013, p166) called into the mind of the interpreter. This means that people know what a toilet sign looks like, because the two

figures represent toilet facilities through learnt association rather than literal representation.[28] The *Object* being semiotically communicated, can be visually represented in three ways: as an *icon*, an *index* or a *symbol*, and Peirce defines this triadic hierarchy as the second trichotomy of Signs (Peirce, 1932, [CP 2.247] p143). The terms *icon* and *symbol*, have unfortunately since Peirce's day, adopted other meanings, especially from *Visual Communication* and Interaction Design perspectives. So, to avoid this discussion quickly becoming muddled with competing definitions from different disciplines, I will adopt the adjective terms of *iconic*, *indexical* and *symbolic*, instead of Peirce's originals.

Despite this modern overlap of terminology, Peirce was careful how he explained what *iconic*, *indexical* and *symbolic* meant. Chandler explains, with clarity, that in Peircean semiotics, "*iconicity* is based on (at least perceived) 'resemblance' and '*indexicality* is based on (at least perceived) 'direct connection" (Chandler, 2007, p37). In Peircean Semiosis, a *symbolic* image is the highest form that a representation of an *Object* may take, to communicate the *Object* in the mind of the interpreter (as in a toilet sign). An *iconic* image is the lowest. Peirce describes these subclasses of *iconic*, *indexical* and *symbolic* images in an ascending order of power. As already has been stated, an *iconic* representation of an *Object* is the lowest subclass that can operate as a Sign, and only when it has a referring *Object*, and *Interpretant*. As such, it can only relate to an *Object* by qualities, as it 'resembles' an *Object* through the association of shared qualities, "whether that *Object* exists or not" (Jappy, 2013, p83). Such qualities indicate that it "is like that thing and used as a Sign of it" (Peirce, 1932, [CP 2.247] p143). A sketch of a bridge, done from memory, would be *iconic*, as it would show the basic qualities of a 'bridge,' such as a structure spanning a gap (see Fig. 2.21a).

The next classification, is an *indexical* representation that associates the Sign, with an *Object*, in a dynamic relationship but asserts nothing more. It has a clearer connection to the *Object* it is representing, through a more existential connection. *Indexically*, it "only says, 'There!' It takes hold of our eyes, as it

28 This makes it a tenth Sign in Peirce's hierarchy - an *Argument Symbolic Legisign*.

Fig. 2.21: Examples of Iconic [a], Indexical [b], and Symbolic [c] representations of an Object.

were, and forcibly directs them to a particular *Object*, and there it stops" (Peirce, 1933, [CP 3.361] p211). A way of understanding this concept, is to think of your index finger pointing at a representation of an actual 'thing' *in-the-world*. In the act of Semiosis, the 'thing' in the representation, is the originating existent *Object*, and the pointing index finger is the indicator that the representation has a direct connection to the existent original. As Peirce says, any *indexical* representation, in itself, does not assert anything other than a statement of 'THERE!' It remains subordinate to the original *Object*. The semiotic Sign, which is created from it to signify the *Object*, only directs the audience's attention to the 'thing' that the audience needs to picture in their mind. It "can only relate to an individual event, *Object* or person, or, in the case of a group portrait" (Jappy, 2013, p85), and establishes a direct *indexical* connection to its *Object*. The qualities of which, are in turn, represented through nested *iconic* images in the construction of the *indexical* image. In keeping the bridge theme going, to help explain this trichotomy, a photograph of an actual bridge, such as Newcastle's Tyne Bridge, is *indexical*, as the photograph points to an existent thing (see Fig. 2.21b).

Finally, a *symbolic* representation, is the most complex subclass of an *Object* as a Sign. These general Signs transcend any individuality of meaning. Instead that meaning is general, and agreed by the Sign's users. To interpret a *symbolic* representation, "we have to learn it" (*ibid*. p91), through the active participation of the *Object*'s *Interpretant*, as an agreed general meaning, relating directly back to the *Object*, so that it can be learnt (Peirce, 1932, [CP

2.247] p143). In other words, a *symbolic* representation's meaning either has to be learnt through socialisation by the Sign's users. Such as learning the meaning of street signs for a driving test. Or else, the *Object* being signified is already known, in advance of the interpretation. Such as knowing that a flag symbolises a single country. Peirce adds that a *symbolic* representation cannot be *invariant*, as "they 'grow' according to usage and the experience of the user" (Jappy, 2013, p103). By knowing that a flag can represent an abstract concept of a nation helps to interpret that, flags that have different patterns and colours, will signify different countries. To give a visual example of a *symbolic* representation, in keeping with the bridge theme used so far, a road sign for a bridge works on a *symbolic* level, in order for the hazard that the Sign represents to be communicated (see Fig. 2.21c).

Queiroz sums up Peirce in this regard, by seeing the logic behind the relationship between the subclasses of the *Representamen* and *Object*, as being "dependent on the third term" (Queiroz 2012a, p322). This is of course referring to the *Interpretant*. What he means is that a full semiotic Sign, will be made up of either an *iconic* qualisign, an *iconic sinsign*, an *indexical sinsign*, a *symbolic sinsign*, or an *iconic legisign*, an *indexical legisign*, a *symbolic legisign*. But for the Sign to be able to be interpreted, each of these dyadic relationships needs to be interpretable. This leads on to the third trichotomy, which in turn, makes a semiotic Sign triadic.

Third Trichotomy: The Interpretant

The third trichotomy, therefore, focuses on the *Interpretant*'s subclass structure, in much the same way as the previous two trichotomies (Peirce, 1932, [CP 2.250] p144). But, before this final trichotomy is reviewed, the Danish semiotician Thorkild Thellefsen adds an extra level to the three trichotomies that is worth mentioning. Thellefsen attributes a human level of existence when he argues that *qualisigns*, *sinsigns* and *legisigns* "correspond to nature," *iconic*, *indexical* and *symbolic* representations "correspond to humankind" and the final trichotomy of *rhemes*, *dicent*s and *arguments* "correspond to culture"

(Thellefsen, 2000, p91). His argument focuses on, "How can we understand the relation between nature and man, while disregarding our culture" (*ibid*. p92). The first subclass of the *Interpretant* is a *rheme*. This refers to the possibility, of representing the quality of the *Object*, in the mind of the interpreter. Jappy suggests this subclass will only represent its *Object*, in mere character, rather than as *information* (Jappy, 2013, p147). The *dicent* subclass, combines the qualitative possibility of a *rheme*, with a proposition to convey information to aid interpretation. Finally, the most complex of the subclasses of the *Interpretant* is an argument. That is an *Interpretant* that is a "Sign of law" (Peirce, 1932 [CP2.252], pp144), which represents its *Object*, as a defined character, of the *Object*.

These three subclasses of the *Interpretant*, Thellefsen argues, not only are culturally focused, but also are also under-represented in "most books about Peircean semiotics" (Thellefsen, 2000, p92). Just as "culture determines how we interpret nature" (*ibid*.), the subclasses of the *Interpretant* determines how the Sign's representation, its *Representamen* (*qualisign*, *sinsign* or *legisign*), of the *Object* (*iconic*, *indexical* or *symbolic*), is to be interpreted by ***The Receiver*** (the human). This third trichotomy, he further notes, "makes it possible for us to understand the relationship between *Firstness* and *Secondness*" (*ibid*. p95). How the *Interpretant*'s subclasses help us to understand the two phenomenological states, is a mediation that comes from the relational nature of the *rheme*, *dicent* and *argument*. Being similar to inference, "the *rheme* is the predicate, the *dicent* Sign the premise and the *argument* the conclusion" (*ibid*. p97) and Semiosis is mediated through the triadic structure of a semiotic Sign.

A *rheme*, is a possibility of a connection to an *Object*, and the Signs it connects to ranges across lower to middle order Signs, which only show a similarity to their *Objects*. Peirce suggests a rheme is understood as a semiotic "propositional function" (Peirce, 1932, [CP2.95] p54). As it is qualitative, it "can only be interpreted as a Sign of *essence*" (*ibid*. [CP2.254] p147). A *rheme* connects itself to both *iconic* and *indexical* representations, as *qualisigns*, *sinsigns* or basic

legisigns. Whereas, a *dicent* proposes an existential connection to an *Object*, and the Signs it connects to form middle order Signs. This is because a *dicent* only connects itself to *indexical* or *symbolic* representations as *sinsigns* or *legisigns*. It cannot be part of a *qualisign*, as a *dicent* belongs to the phenomenological state of *Secondness*, while *qualisigns* are pure *Firstness*. Finally, an *argument* (as a subclass) to Peirce is a law, where an interpreted meaning has a consensus, which connects it to an *Object*. These Signs form the highest order semiotic Sign, because an argument only connects itself to a *symbolic* representation as a *legisign* (*ibid*. [CP2.250-252] pp144-145).

Peirce forms these rulings (1932, [CP 2.243-254] pp142-146) into his ten classes of semiotic Sign (see Fig. 2.22).[29] This will be reviewed in the next section (2.4.4), but before that is done, it is important to also look first at the three constituent phases an *Interpretant* has, that enables it to be interpreted. If the three subclasses of *rheme*, *dicent* and *argument* classify how the *Interpretant* actually communicates to ***The Receiver***, then how an *Interpretant* functions is, according to Peirce, dependent on three constituent phases he defines as *immediate*, *dynamic*(al) or *final*. The *immediate Interpretant* is the "meaning of the Sign" (Peirce, 1934 [4.536], p422), and "is the *Interpretant* within the Sign" (Jappy, 2013, p17), which leads to its interpretability.

This means that for a Sign to be read as a Sign, it first must be immediately interpretable as Eco defined (Eco 1976, p7). The effect the interpretation has on ***The Receiver***, is what is referred to as, the *dynamic*(cal) *Interpretant*. This "is not a potentiality but an existent, perceivable fact" that is a result of the Sign itself (Jappy, 2013, p18). The final *Interpretant*, as Peirce defines it, "refers to the manner in which the Sign tends to represent itself to be related to its *Object*" (Peirce, 1934 [4.536], p423). Jappy explains further what Peirce means, by describing the final *Interpretant* as both, "the guarantee of any future interpretative development and (...) the way everybody would react to a given Sign" (Jappy, 2013, p17). The significance of this is that, the *Interpretant*, and

29 (1) *Rhematic Iconic Qualisign*; (2) *Rhematic Iconic Sinsign*; (3) *Rhematic Indexical Sinsign*; (4) *Dicent Indexical Sinsign*; (5) *Rhematic Iconic Legisign*; (6) *Rhematic Indexical Legisign*; (7) *Dicent Indexical Legisign*; (8) *Rhematic Symbolic Legisign*; (9) *Dicent Symbolic Legisign*; (10) *Argument Symbolic Legisign*.

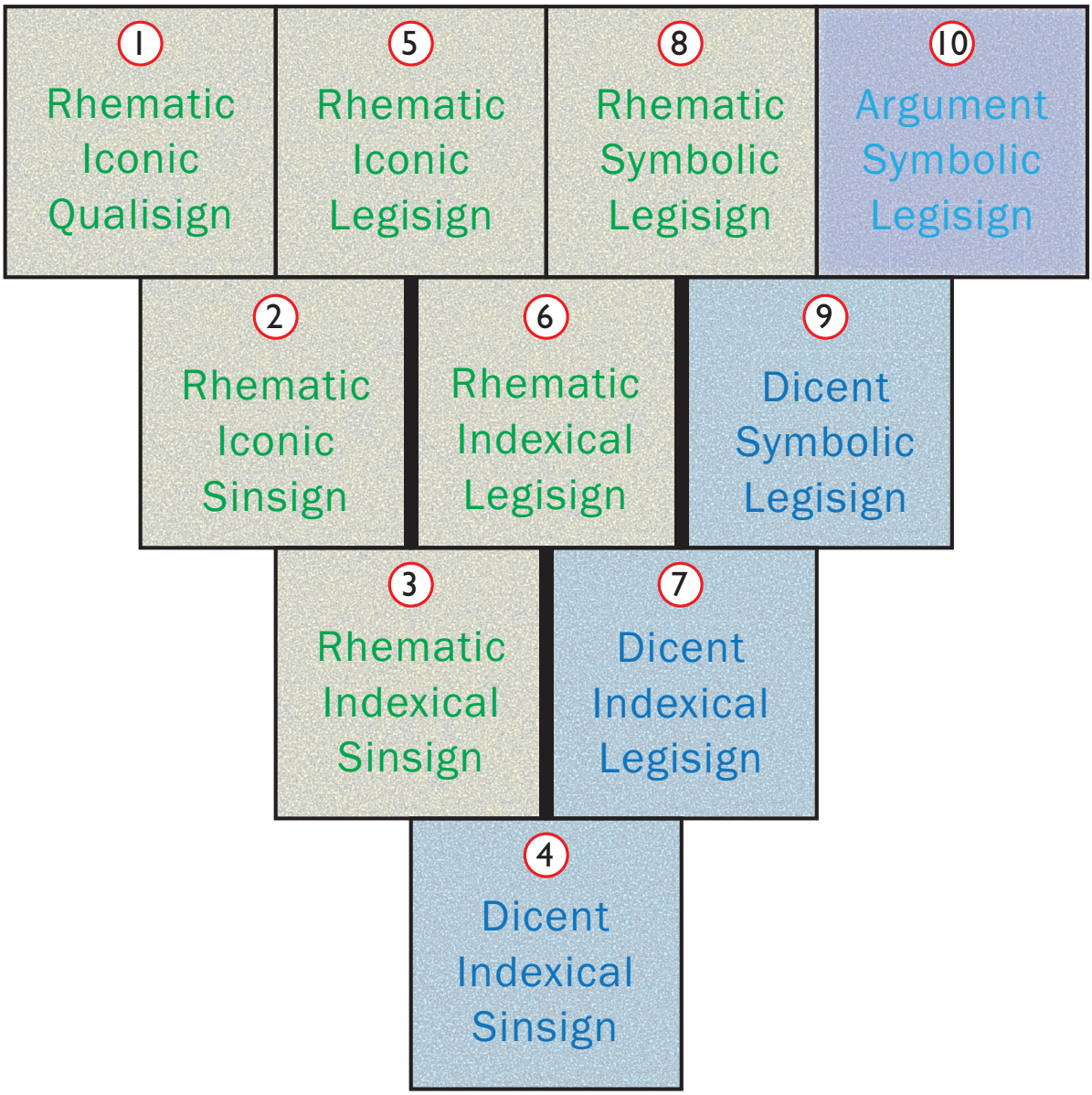


Fig. 2.22: Peirce's ten classes of semiotic Sign.

it's subclasses of *rheme*, *dicent* or *final*, each operate with how ***The Receiver*** understands what to read (*immediate*) as a Sign. This affects the mediation (*dynamic*(cal)) the Sign has on the interpretation of the Sign's meaning, before the Sign's meaning can be generally understood (*final*). With this in mind, it is now the moment to review Peirce's ten classes of semiotic Sign.

2.4.4 The Ten Classes of Semiotic Signs

It has already been discussed, in the previous section, that Peirce defined ten classes of Sign (see Fig. 2.22) through three trichotomies of division, using three subclasses. The first trichotomy focused on how the Sign represents itself using either a *qualisign*, *sinsign* and *legisign*. The second trichotomy focused on the *Object* that the Sign is communicating, in order to interpret a meaning, using either an *iconic*, *indexical* and *symbolic* representation of the *Object*. Finally, the third trichotomy focused on the interpretation, using either a *rheme*, *dicent* and *argument*. Peirce, using these three trichotomies, correlated the complexities of each hierarchical subclass against each other, and identified ten classes of semiotic Sign. *Qualisigns*, *iconic* [representations], and *rhemes* all represent the immediate qualitative possibility of a Sign, and are part of the state of *Firstness*. *Sinsigns*, *indexical* [representations], and *dicent*s represent the existent nature of the Sign, and are part of the state of *Secondness*. Finally, *legisigns*, *symbolic* [representations], and *arguments* are agreed 'laws' of meaning, and are part of the state of *Thirdness*. Either the *Representamen* (first trichotomy), the *Object* (second trichotomy), or by the *Interpretant* [third trichotomy] classifies the form that each of the ten Signs takes (Peirce, 1932 [CP 2.243-254], pp142-146).

How this worked is that the three-part class names, of each of the ten Signs, are derived from the mix of three subclasses.[30] Within each class of Sign, the relevant subclass (e.g. a *qualisign*, an *icon* and a *rheme*) is chosen, through

30 To explain Peirce's rules simply, de Waal is the most succinct and cogent. "For Peirce, not all combinations are possible. *Qualisigns* can only be *iconic* because they cannot point at anything beyond themselves; they merely display some quality of the Sign. Icons can only convey a possibility; hence they can only be *rhemes*. *Sinsign*s (where a *par*ticular *Object* as a *whole* is the Sign) can only relate to their *Object* as *icons* or *indices*. As *icons*, they can again only be *rhemes*; as *indices* they can also be *dicents*. *Legisigns*, finally, can be *icons*, *indices*, or *symbols*. As *icons*, they can again only be *rhemes*. As *indices*, they can again only be *rhemes* or *dicents*. Finally, as *symbols* they can be *rhemes*, *dicents*, or *arguments*. This means that only *legisigns* that determine their *Objects* as *symbols* can be interpreted as *arguments*. Put briefly, by first starting off from the qualities of the Sign, then take into account how these different Signs can be determined by their *Objects*, and then considering how the result can determine an *Interpretant*, Peirce comes to distinguish ten types of Signs" (de Waal, 2013, p91).

an ascending hierarchy, drawn from the phenomenological states of *Firstness*, *Secondness* and *Thirdness* (Peirce, 1932 [CP 2.254-264], pp147-150). Huang and Chuang give a useful explanation of how this logic complexity works:

> "When a more specific category (say, *Secondness*) is used in the *Object*, the less specific category (say, Firstness) cannot be used as its [*Representamen*]. Likewise, a less specific *Object* cannot impose a more specific *Interpretant*. This excludes the case where one has a *Secondness Object* but demands a *Thirdness Interpretant*" (Huang and Chuang, 2008, p6).

The ten logical forms of a semiotic Sign begin with one based on qualities (1), and ends with another that is of a generally agreed interpretation (10). In this way, Peirce logically defined the "ten distinct and increasingly complex classes of Signs" (Jappy, 2013, p164), by eliminating combinations of subclasses that were not possible (Chow and Jonas, 2010, p13), leaving only those that would "identify a Sign's logical form" (Jappy, 2013, p195). To explain this with more clarity, it is useful to briefly outline two classes of Sign that are pertinent to this thesis. Peirce's ten classes of Signs are outlined in full in Appendix D, following the cross-relational compounds that Merrell (1996) laid out (see Fig. 2.23).

Dicent Sinsign

The first Sign to outline is the fourth Sign, that Peirce describes as "any *Object* of direct experience, in so far as it is a Sign, and, as such, affords *information* concerning its *Object*" (Peirce, 1932 [2.257], p147). This is the *Dicent Indexical Sinsign* (4), and is a Sign "of direct experience, connection or existential relation" (Huang and Chuang, 2008, p9), which "spatio-temporally" (Queiroz, 2012b, p58) conveys information about the direct experience of its *Object*. The only *information* that can be interpreted from a *Dicent Indexical Sinsign* "is of actual fact" (Huang and Chuang, 2008, p9). Therefore, as Peirce logically defines it, it can only be represented as a one-off (*sinsign*), which uses an *indexical* representation to communicate the experience of its *Object*. As an existent Sign, it can only be interpreted through a proposition, to understand the direct experience. This makes its *Interpretant dicent*.

This fourth Sign, which Peirce shortened its name to a *Dicent Sinsign*, utilises both a nested *Rhematic Iconic Sinsign* (2), to present the information on

the *Object*, and a nested *Rhematic Indexical Sinsign* (3), to communicate the *Object*. Peirce, to describe a *Dicent Sinsign*, gives an example as a "weathercock" on top of a public building (Peirce, 1932 [2.257], p147)). This concept is reiterated throughout the Peircean literature, but there is a dearth of alternative visual examples of what his Sign could be. Peirce propounds how a weathercock (such as can be seen on church steeples), communicates its *Object* (the wind), through its *Interpretant*, the direction it points to when blown. This *Object* is represented, using the nested *Rhematic Indexical Sinsign* (3), within the fourth Sign. The weathercock, as a *Representamen*, takes the form of a 2D cockerel that announces the wind direction. This 2D cockerel shape is the nested *Rhematic Iconic Sinsign* (2) within the fourth Sign.

Within *Visual Communication*, this more complex form of communicating, can be described as engaging in a level of design as reportage. As such, the designer can be described in terms such as a facilitator, to communicate a direct experience. A visual example of a *Dicent Sinsign*[31] may be something like Ben Heine's images in his Pencil vs. Camera Photo Project (see Fig. 2.24). In the visual example, he uses a photograph of an existent experience. His use of a drawing, as a visual intervention, adds a level of commentary to the image, that communicates his thoughts on experiencing the fly tipping. The completed image is the *Dicent Sinsign*. In the visual example, the part that is the drawn element is a nested *Rhematic Indexical Sinsign* (3), pointing to the possibility of the intentions of the fly dumpers. The photographic element, with a blurred depth of field, is a nested *Rhematic Iconic Sinsign* (2) that shows the qualities of fly dumping. Combined together, the image may visually communicate the motivations of the dumpers, but more accurately, it communicates the disdain felt by Heine on discovering the fly tip.

Dicent Symbol

The next Sign to outline is the *Dicent Symbolic Legisign*, the ninth Sign. Peirce describes this as, "a Sign connected with its *Object* by an association of general

31 Peirce shortened this to the term ***Dicent Sinsign*** (Peirce, 1932 [2.257], p147) not to be confused with the terms ***Dicisign*** and ***Dicent Sign*** that refer to alternatives for the ***Interpretant*** subclass of ***dicent*** (Peirce, 1932 [2.251], p144).

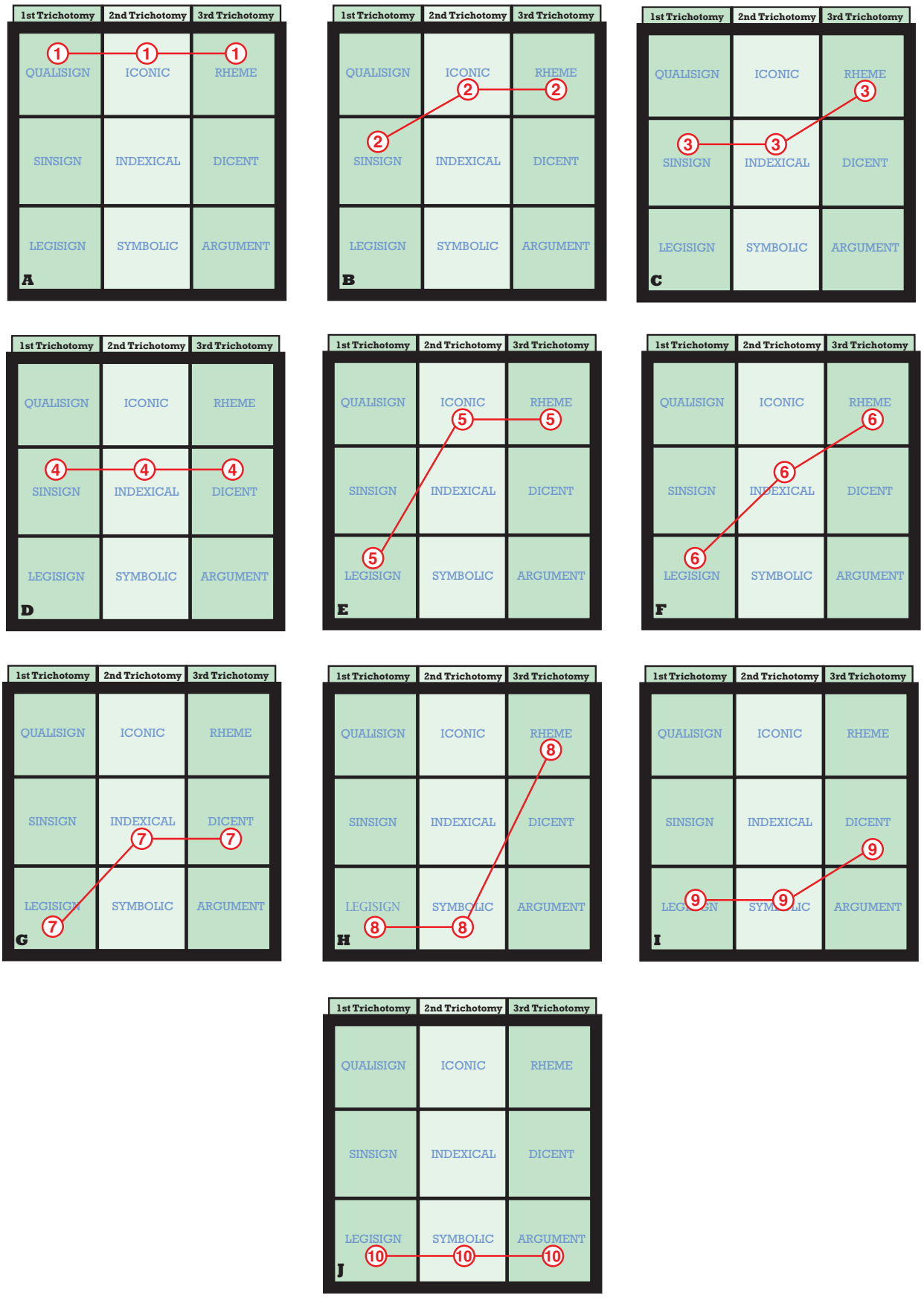


Fig. 2.23: The Mapping of Peirce's Ten Semiotic Signs (based on outline of Merrell's compounds (1996)) (a) 1.Rhematic Iconic Qualisign, (b) 2.Rhematic Iconic Sinsign, (c) 3.Rhematic Indexical Sinsign, (d) 4.Dicent Indexical Sinsign, (e) 5.Rhematic Iconic Legisign, (f) 6.Rhematic Indexical Legisign, (g) 7.Dicent Indexical Legisign, (h) 8.Rhematic Symbolic Legisign, (i) 9. Dicent Symbolic Legisign, and (j) 10. Argument Symbolic Legisign.

ideas, and acting like a *Rhematic Symbol*, except that its intended *Interpretant* represents the *Dicent Symbol* as being, in respect to what it signifies, really affected by its *Object*, so that the existence or law which it calls to mind must be actually connected with the indicated *Object*" (Peirce, 1932 [2.262], p149). The ninth Sign is an advance up from being immediate, to a Sign that has an *Interpretant* that is an actual existent (*dicent*). Huang and Chuang, describe a *Dicent Symbolic Legisign* (9) as acting like a *Dicent Symbolic Legisign* (8), "but its intended *Interpretant* represents Sign (9) as an existential relation that must be connected with the indicated *Object*" (2008, p11). This leads the Sign to being described by Peirce as, an "ordinary Proposition" (Peirce, 1932 [2.262], p149). The ninth Sign, as a Sign, represents itself as a *legisign*, and uses a *symbolic* representation to communicate its *Object* (the agreed proposition of the Sign). This *symbolic* representation is sometimes helped by utilising a *Dicent Indexical Legisign* (7) in the Sign, in order to strengthen its overall representation.

Peirce shortened the ninth Sign's name to *Dicent Symbol* (Peirce, 1932 [2.262], p149), but maintaining that its existence or law "must be actually connected with the indicated *Object*" (*ibid*.) and its *Replica* does this as it is a one-off (*sinsign*), existent (*indexical*), premise (*dicent*) that shows the existential relationship. The ninth Sign's *Replica*, a peculiar type of *Dicent Indexical Sinsign* (4), is easy to recognise "as a *Replica* of Sign (9) because the information conveyed by the Sign is of an actual fact or an existential relation" (Huang and Chuang, 2008, p11). This means that there is an existential relationship to the *Object*, made through the use of a *Replica*, because a *Dicent Indexical Sinsign*, in itself, cannot "convey information of law [fact]," except if used as a *Replica* (an instance of the ninth Sign). The fourth Sign, when used as a *Replica*, helps call to the mind of ***The Receiver***, the ninth Sign's general idea.

Queiroz, in his work on biomimicry, through a Peircean framework, defines a *Dicent Symbol* as, "the (composite) Signs which may be true or false" (Queiroz *et al*., 2012, p81). Within *Visual Communication*, this form of 'ordinary proposition' can be described as a matter of truth or fiction, and whether ***The Receiver***

Fig. 2.24: A visual example of a Dicent Indexical Sinsign (4).

Fig. 2.25: A visual example of a Dicent Symbolic Legisign (9).

can understand the difference, in order to extract the meaning. To visually represent propositions, its designers have used all kinds of techniques, such as metaphor, simile, irony, impossibilities and 'lies,' to effectively communicate. A visual example of such a *Dicent* Symbol, as an 'ordinary Proposition,' may be something like the guardsman in the barbershop image (see Fig. 2.25). In this spoof image, the proposition is that a barber cuts hair, and under that hair is a scalp. This is cleverly manipulated by the image of a British Guardsman getting his head shaved. The impossibility of the guardsman's head, being the same shape as his bearskin headwear, is used to sell the proposition as a spoof.

The *Dicent Symbol*, semiotically, is a very advanced technique to visually communicate quite complex concepts, in a deceptively simple way. Explaining how this image is a *Dicent Symbol* is easy. As a Sign, it communicates the proposition of the 'association of general ideas' that, (a) barbers cut hair; (b) scalps are under the cut hair; and (c) the scalp will be revealed if the hair is cut off. This example image, connects 'with its *Object*' that is hair cutting. Now, with the in-joke of the patron being a British Guardsman, who are known for wearing large formal bearskin headgear, the proposition in the image raises the idea in the mind of ***The Receiver***, that the guardsman's head really is that elongated shape. Hence the scalp taking an illogical, and fanciful shape of the bearskin, instead of a normal human skull shape. This is visually communicated within an image of 'an actual experience' (e.g. haircutting), in the form of a fourth Sign - an instance (*Replica*) of the ninth Sign.

2.4.5 Hermeneutic-Semiosis

So far, through this contextual review, *Visual Communication* has been explored predominantly through both a Frascarian, and a Peircean perspective. From a Frascarian position, the design outcomes of *Visual Communication*[32] leading to a behavioural change in its intended audience, still needs to do so by utilising a semiotic process within a communicational situation (Baldwin & Roberts, 2006, p38; Barnard, 2005, p25, p28, p67; Bergström, 2008, p82, Dourish,

32 That manipulate aesthetics, typography and image in order to communicate a message.

2004, p88, Forlizzi and Lebbon, 2006, p52; Frascara, 2004, pp13, 19, 67-68, 86 and Kolko, 2010, p104). If done well, ***The Receiver*** will be able to interpret the intended meaning (Bergström, 2008, pp32-33, p80; and Frascara, 2004, p85). This PhD thesis focuses on a Peircean pragmatic Semiosis where meaning-construction by the intended Receiver, is a phenomenologically structured event (Bergström, 2008, p80; and Dourish, 2004, p18).

To pursue this thesis, two of Peirce's ten classes of semiotic Sign are of major interest: the fourth Sign, a *Dicent Sinsign*, and the ninth Sign, a *Dicent Symbol*. To illustrate their importance, it is necessary to move to the final part of this contextual review, where the synthesis of this research forms around what the author calls *hermeneutic-semiosis*. This will pull the important components from Hermeneutic Phenomenology, *Visual Communication* and Peircean pragmatic semiotics together in the development of a *Visual Phenomenological Methodology* to visually interpret experience.

Dourish (2004) has provided a connection for *Visual Communication* between Phenomenology, Interaction Design, and HCI. Harrison frames this as a third paradigm of HCI exploring experience, through a 'Phenomenological Matrix' (Harrison *et al.*, 2007, pp7-8) of plural perspectives, to understand human interaction. Before Harrison, Petersen (2004), when exploring the design of interactions, had also explored the interrelationship between the aesthetic and Phenomenology. Petersen helped create a framework for HCI to explore aesthetics within interaction, beyond the *instrumentality* of a functionalist approach (Petersen *et al.*, 2004). Both have also, unknowingly, helped to build the necessary structure of theory and language, which *Visual Communication* can build further upon, to move across the disciplinary boundaries, in order to influence Interaction Design in a fresh way. This new way, rests on *Visual Communication* synthesising with methods of hermeneutic phenomenological inquiry, to help interaction designers. How *Visual Communication* can help is through revealing the lived experience (van Manen, 1990) of users performing interactions, which interaction designers need to understand, so they can

improve future designs. There are already other user-centred research techniques available to designers (see Fig. 2.26), such as those featured on the IDEO Method Cards (2003), or designingwithpeople.org website. These methods are traditionally organised under such verbs as "Learn, Look, Ask and Try" (IDEO, 2003), "Discover, Define, Develop, Deliver" (Design Council, N.D.) or "Learn, Look, Ask, Try and Imagine" (Designing With People, N.D.),

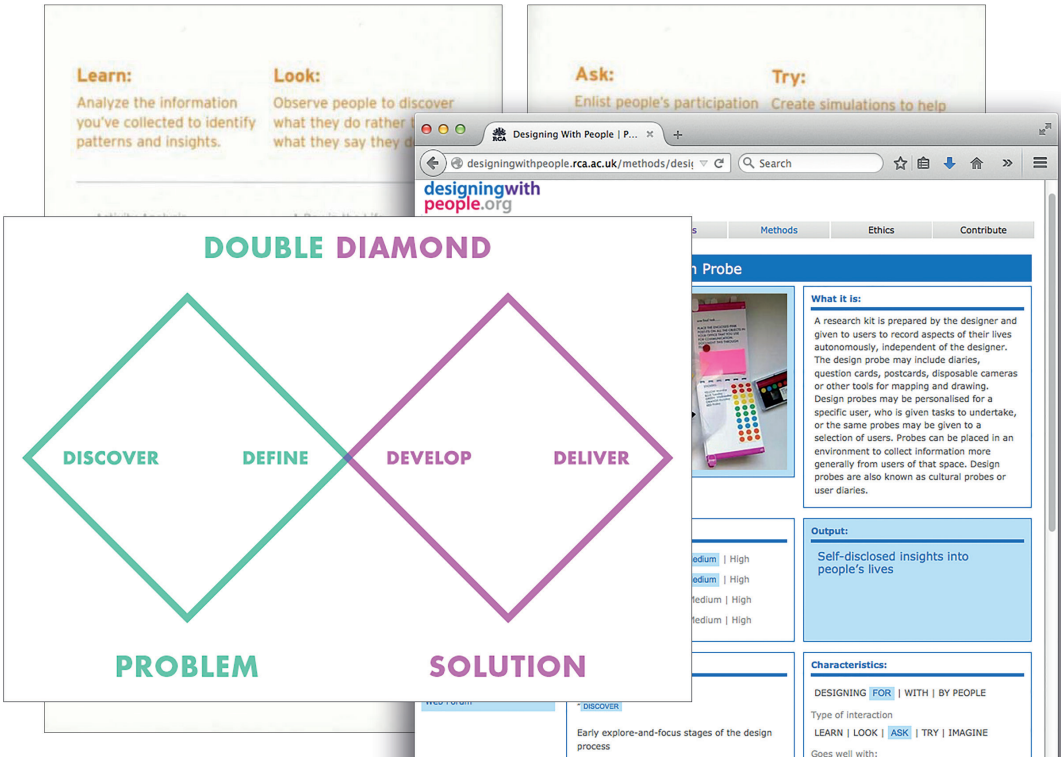


Fig. 2.26: Existing user-centred research techniques.

and they encourage designers to research into the user experience. Some techniques categorised under the verbs Look/Learn, and Discover/Define, are useful to mention before continuing on to concluding this review.

This thesis rests on developing a new methodology that would, in principle, be classed under 'Discover' in the above table. But more accurately, it would add the new terms of 'Reveal' and 'Interpret.' This is because what is proposed, is a fresh form of hermeneutic research, encompassing a visual interpretative approach, to visually reveal the studied lived experience, using an expansion of Gaver's cultural probes (Benner, 1994, p120; Crabtree, 2003; Gaver, 1999; Harman, 2007, p241; Kolko, 2010, p50; Lopez and Willis, 2004, p734; and Mattelmäki, 2006). To build such a methodology, it is important to bridge

across disciplines and philosophies, as through synthesising Heidegger's famous *hermeneutic circle* with Peircean Semiosis such a new designer-focused qualitative approach can be made. This is what the author terms as a process of *hermeneutic-semiosis*, and it is influenced by O'Neill's term phenomenology of signification (O'Neill, 2008, p81). Although Peirce predates the development of Hermeneutic Phenomenology, the synthesis between the two philosophies is achievable through the pragmatic roots of his Semiosis. Through his own phenomenological theory (Peirce, 1931, [CP 1.284-544] pp139-286). As Jappy states, Peirce's form of semiotics is phenomenologically founded on "the study of whatever can be 'present to the mind'" (Jappy, 2013, p60).

In this way, pragmatically based visual tools can be created (that Heidegger would define as *presence-at-hand*),[33] in order to perform a *hermeneutic circle* of interpretation of a lived experience, to reveal the *essence* of that experience (van Manen, 1990, p78). Peircean Semiosis provides a robust pragmatic methodology, based on pragmatic logic, that the more structuralist semiotics of Saussure and Barthes couldn't provide.

This contextual review chapter's final section focussed on the significance of the Pragmatic semiotics of C.S. Peirce. Peirce defined this as Semiosis (Peirce, 1932; Chandler, 2007; and Jappy, 2013). As semiotics is an integral part of how Visual Communication successfully constructs the transmission of its messages, from **Sender** *to* **Receiver***, this section brought the review of the research back to the visual. Importantly this was achieved through a direct link from Interaction Design and HCI (O'Neill, 2008), via the existing research from an area of Aesthetics of Interaction (Lim et al., 2007). Peirce was selected over the Structuralist Saussure's form, because Peirce created his Semiosis through a phenomenological understanding of how Signs pragmatically communicate its meaning through signification (Peirce, 1932; Jappy, 2013).*

33 *Presence-at-hand* is a Heidegerrian term that describes a tool's state of being 'occurent,' in the consciousness of the user, as a facilitator for an affect, rather than just being another 'available thing' (Dreyfus, 1991, pxi). From a Heideggerian experiential perspective this is the step of the tool moving in the mind of the user, from a state of *Zuhandenheit* (*readiness-to-hand*) to a state of *Vorhandenheit* (*presence-at-hand*)

The three phenomenological states of Firstness, Secondness and Thirdness (Peirce, 1932; Huang & Chuang, 2008; Crow, 2010; and Jappy, 2013) was explored in some detail, as it was an area that was alien to many readers, the author included. But within these states the determination flow of the sign-action occurred (Peirce, 1932). In understanding how pragmatic, semiotic Signs work, this introduced the concept of triadic relationships. These triads are important to understand how Peirce defines ten classes of Sign, from the simple to the complex (Peirce, 1932). The terminology that Peirce employs is complex, but notwithstanding this, once it is understood the inner logic of the system becomes apparent. Terms such as qualisign, sinsign, legisign, rheme, dicent, argument, indexical, interpretant and representamen, are difficult to grasp (Crow, 2010). While in Interaction Design, such terms as icon and symbol, have evolved different meanings from Peirce's use of them, so that iconic and symbolic had to be used by the author, to ensure Peirce's definitions were transmitted to the reader. The review focussed on explaining how two out of Peirce's ten Signs communicated meaning (Peirce, 1932). These two Signs were selected based on their relation to the thesis of using Visual Communication to reveal the essence of a lived experience.

In Chapter 3 the three practical PhD projects will be outlined in order of their implementation. Internal / External 2010 project was undertaken between September and December 2010, then The Dynamic Sinsign Project took place between September and June 2013. The final project, The Circle of Visual Interpretation, took place from October 2013 to September 2014. The next chapter will describe each practical project using a similar set of criteria (although each project experimented with different aspects of developing the proposed Visual Phenomenological Methodology). Each project will therefore end with a reflexive statement on how the outlined experimental project informs the development of such a Visual Phenomenological Methodology through using visual communication techniques. To aid this level of reflexivity

in the chapter, the projects will each have a section that will first outline each project's aims, objectives, and the methodology used to perform each experiment. Due to the nature of the practical part of the project, the methodology used in each project will differ. In doing so, the intention of the author is to orientate the reader into understanding the practical application of the theoretical grounding outlined in this contextual review.

Chapter 3: The Practical PhD Projects

The theoretical grounding reviewed in the previous chapter identified three important strands in order to answer the research question. Frascara saw that Visual Communication had a role as a facilitator of behavioural change in The Receiver and the discipline had, at its historical roots, a tendency to move across disciplinary boundaries. A critical perception of the discipline was that it had an "aversion to theory" (Poynor, 2003, p10) due to the tacitness of its designers, but it always referenced a lot of theory (but not in an academic way). The pragmatic semiotics of Peirce's Semiosis (1932, 1933) was a natural theoretical ground to use to structure the visual part of developing the Visual Phenomenological Methodology. To phenomenologically extract the meaning from the lived experience, Hermeneutic Phenomenology (Heidegger, 2013a and 2013b) was chosen to synthesise with Semiosis to develop the Visual Phenomenological Methodology.

Therefore, in order to develop and test such a new qualitative methodology with Visual Communication at its core, three practical projects were designed and implemented. The first project would collect the sensory data from a simulated lived experience, and test the collection methods. The second project would begin to develop and test the Visual Phenomenological Methodology. This would only test the 1st interpretive turn of the visual hermeneutic circle (Heidegger, 2013a), which was the theoretical engine of the methodology. This would leave the third and final practical project to complete the research and experimentation. This project would include actual interaction designers in evaluating what was achieved. This chapter outlines all three projects in chronological order.

3.1 Project 1: Internal | External 2010

Internal | External 2010 began in September 2010, and formed the first part of three interconnected practical PhD projects. As the first practical project, its purpose was designed to capture in a phenomenological way, sensory data from a lived experience. This data would then be used in **The Dynamic Sinsign Project** and **The Circle of Visual Interpretation** projects. In doing so, a *Visual Phenomenological Methodology* would be developed to analyse this sensory data, through an applied synthesised process of *hermeneutic-semiosis*.

To do this **Internal | External 2010** concerned itself with focusing upon collecting data through a small, manageable research project that simulated a lived experience of using an unfamiliar touchscreen artefact, within a controlled gallery environment. Eleven participants were recruited in November 2010, from the Edinburgh area, to take part in this simulated lived experience project. It took place in Edinburgh University's *Inspace* gallery over two days. The participants were tasked with using an unfamiliar touchscreen artefact, within a time constraint of 30 minutes each. This shared, short 'lived experience' was enough to create a "sensation of their own actions" (McCarthy and Wright, 2004, p85). The tasks afforded the opportunity to collect a set of phenomenological sensory data from the participants, that then could be analysed through visual interpretation, to reveal the *essence* of that simulated lived experience.

In designing this project, a phenomenological qualitative approach was taken. This was synthesised into a methodology from Moustakas (1994) and van Manen (1990), and through adapting existing methods and tools that are shared with other qualitative researchers. These non-phenomenological approaches included videoed observation, semi-structured interviews, and a *Cultural Probe* (Gaver, 1999),[1] which was purposely-redesigned into an

1 Hermeneutic Phenomenology methodology can orientate itself to use qualitative methods to aid interpretation where appropriate, and a *probe* is a valuable tool. The concept of a *Cultural Probe* has grown, morphed and expanded into specific qualitative tools which go by names such as *Informationa*l Probe, Mobile Probes, Technology Probes, Empathy Probes (Bernhaupt *et al.*, 2007, p607), and are designed to elicit different types of data from different research situations. Bill Gaver is critical of those who have adapted the idea and have since made it too analytical. It is a qualitative and not a quantitative tool that provides the designer-researcher rich insights into a subject's experience. Finnish academic Tuuli Mattelmäki provides four powerful reasons for applying probes to provide *inspiration*, to seek *information*, to gain participation and to provoke dialogue (Mattelmäki, 2006, p58).

Experience Probe. This *probe* helped prepare (calibrate) each participant to recognise 'an experience' and then to elicit responses from them on experiencing 'an experience'. The *Experience Probe* helped the participants to understand, that it was their experience of using the touchscreen technology that was being observed and not an evaluation of the touchscreen itself.

This *Experience Probe* contained two tasks, and was given out to each participant once they agreed to volunteer. These tasks would be performed at set times during the project. Task 1 was a pre-observation exercise, which prepared each participant to recognise and communicate 'an experience.' Task 2 was a post-observation exercise, set to quickly self-capture their own reflections of what happened during the observation of 'the experience.' Through the *Experience Probe* a lot of sensory data was collected direct from each participant (see appendix A, pp6-45). This was supplemented with additional sensory data from observations and interviews (see Appendix B).

3.1.1 The Project's Purpose, Goal and Outcome

As stated above, the purpose of the **Internal | External 2010** project was essentially a sensory data gathering exercise. It focused on an observed lived experience, within a controlled environment using an unfamiliar touchscreen, to analyse the level of an individual's aesthetic experience. Its goal, in capturing this sensory data in a phenomenological way, was to collect enough raw data to later analyse when developing the *Visual Phenomenological Methodology*. The *Visual Communication* outcomes of **Internal | External 2010** were two-fold: a professionally created *Experience Probe*, plus participant-generated visually communicated reflective responses.

3.1.2 Internal | External 2010 Methodology

The methodology used in **Internal | External 2010** will be discussed in two stages. The first stage will be on the preparation of the study, especially on ethical recruitment and the design of an *Experience Probe*. The second stage will be on collecting the sensory data. After that, this section on **Internal |**

External 2010 will conclude on the *Visual Communication* outcomes that this project generated.

Stage 1A: Ethically Recruiting Participants

Eleven participants were ethically recruited from the Edinburgh area, via a dedicated website called *Aesthetic Volunteers* on the Meetup.com social network (see Fig. 3.1) . This followed the guidelines set out by Marshall and Rossman (1999) on how to ethically recruit participants for a qualitative study. The website attracted, in a short time, 30+ interested people who joined the group after participant briefings at during September 2010. From these interested people 11 participants were ethically recruited (see Appendix A, pp2-3). These participants were a broad social mix, with the composition of the group having a range of ages between 30 and 60, with varying backgrounds and experience of interactive artefacts. The gender balance was not a critical factor, but it was weighted toward a female majority.

In the preparation of such a phenomenological project, it was important to be very careful how these participants were briefed. This was so that the participants were not biased by the author's own *pre-understanding* that he/she brings to the project (Parsons, 2010, p63). As a hermeneutic phenomenological researcher (within a practice-based context), Parsons reminds all Heideggerian-aligned researchers about bringing their own *fore-structure* to their research. This *fore-structure* has a three-fold influence on interpretation: ground [*fore-having*], perspective [*fore-sight*], and expectation [*fore-conception*] (Heidegger, 2013a [1929], p191; Dreyfus, 1993, pp198-199). Therefore, at all times during the briefing, the language used by the author was kept neutral. This ensured that the *fore-sight* of the author did not bias the participants before the project began. To ensure that the participants were ethically recruited, the qualitative guidelines set down by Creswell (2003, & 2007) and Marshall and Rossman (1999) were adapted into four stages:

(A) Recruitment and issuing of an *Experience Probe*, on receipt of a consent letter (see Appendix A, p3);

Fig. 3.1: The Aesthetic Volunteers Meetup recruitment website.

(B) The first interview, which focused on *probe* Task 1's sensory data;

(C) The actual observation of each participant, using an unfamiliar interactive installation, within a gallery environment;

(D) The second interview, which focused on *probe* Task 2's sensory data.

Stage 1B: Designing the Experience Probe

The *Experience Probe* that was designed for **Internal | External 2010**, was a variant between Gaver's *Cultural Probe* (1999) and Mattelmäki's Empathic *Probe* application model(2006).[2] Mattelmäki presents four powerful reasons for applying *probes*: *Inspiration*; *Information*; *Participation*; and *Dialogue* (2006, p58). These four reasons map onto this PhD author's own rationale for designing the *Experience Probe*. The *probe's* tasks featured just enough *information* to generate sensory data without bias, and it had a ludic nature to *inspire* the participants to *participate* and complete the tasks on time.

Finally, the participant-generated, visually communicated, reflective responses from the tasks, created a phenomenological *dialogue* between the researcher (in this case this was the author) and each participant, through the employment of visual communication techniques. This *dialogue* deepened each participant's unconscious recollection of an experience, transcending other traditional research methods such as questionnaires, focus groups, etc As Mattelmäki states, for participants to be asked to express an experience they have had, "they become more aware" of that experience (2006, p128). By participants re-expressing 'an experience' through the *probe's* Task 1, the intention was to heighten the participants' responsiveness during the observation period, and enrich the generated sensory data.

Mattelmäki describes observation as "a useful technique in tracking different contextual data such as work flows, sequences of actions, the

2 Mattelmäki in her PhD took the *probe* idea further than Gaver. Her use of *probes* followed two possible applications: applied to garner empathy (an empathic *probe*); and applied seek *inspiration* (a *Cultural Probe*). For a designer to seek an empathic understanding of their users she defines five steps: (A) Tuning In, (B) Probing, (C) Interpretation, (D) Deepening, and (E) Interpretation and Ideation. For an *inspirational* purpose to a *probe* then there are only three steps [A, B, and E] (Mattelmäki, 2006, p99).

physical environment, ergonomic and usability issues as well as interaction between persons and products" (Jääskö & Mattelmäki, 2003, p130). What made this project's *Experience Probe* a different tool to Gaver's cultural *probe*, was in its intent of use. Any *probe* returns participant-generated data, through the structure of a its specific methodological design (ethnography, grounded theory, etc.). This creates particular forms of qualitative data collection.

The *Experience Probe* generated sensory data in a phenomenological way, so its chosen form had to communicate a positive first visual impression from both its physical appearance, and how the tasks inside it appeared to the participant (see Fig. 3.2). The *probe's* container took the form of a metal DVD tin, packaged to immediately invoke curiosity and a desire to engage with it. This packaging performed two roles: first as a container for the two tasks; and secondly when empty it became a numbered participant certificate and souvenir. The *probe* was sealed with a paper seal that the participant would

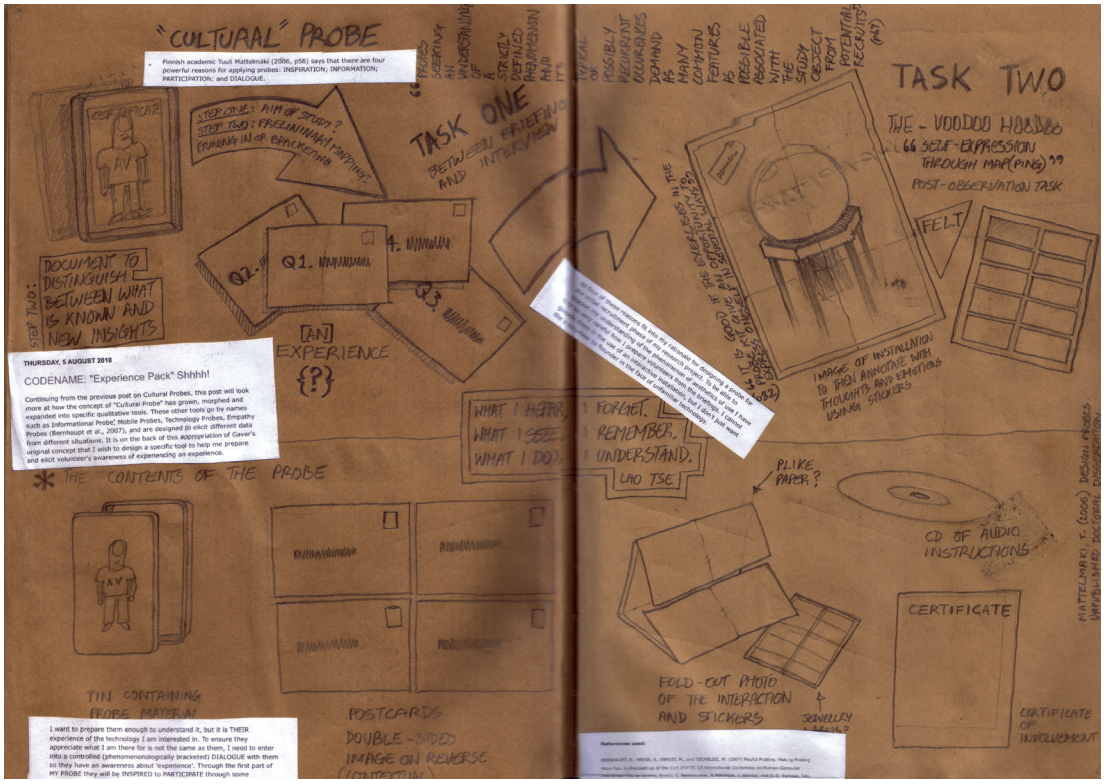


Fig. 3.2: Designing the Experience Probe.

have to break to access the two tasks inside (see Fig. 3.3). These tasks were of an intentionally ambiguous and open-ended nature, which was visually communicated through the choice of packaging materials. Inside each task minimal instructive guidance was provided to 'the things themselves'[3] without biasing the participant.

Stage 1C: Choosing the Interactive Artefact (Touchscreen)

This lived experience would require a natural beginning, middle and definitive culmination in order to study it within a 30 minute observation. It also needed to be an activity that would be beneficial for an interaction designer to be studying. It was felt that the chosen experience of using an unusual interactive artefact satisfied this set criteria. It was also crucial that the artefact also attracted the participants to immediately use it. The initial thinking was that the chosen interactive artefact could take any form, as long as it had interesting default applications that could be used by anyone. The choice of an interactive artefact to use did need to be suitably different to anything the participants may have encountered in their everyday life. There was a fine balance between the familiar over the unfamiliar that needed careful deliberation when designing the project. During the observation, the participants could not be guided in its use to avoid bias. To avoid any participant anxiety in the face of interactive technology, it was rationalised that an unusual but non-threatening touchscreen would equalise any participants' prior experience of interactivity.

So a fairly new touchscreen PC was borrowed from *Interface 3*, an Edinburgh-based touchscreen games company, to be the gallery-based artefact. In 2010 large touchscreens were still fairly rare to the average user, but to keep a sense of the unusual, the touchscreen was laid flat on the table, so that it appeared to be a large interactive tablet. This provided a basic level of familiarity for all the participants, so that their behaviour could be observed. To ensure

3 This expression "to the things themselves" is a nod to the rallying cry of Phenomenology as to what defines it as a philosophical discipline... "Back to the things themselves" in order to understand how the world manifests itself to us through the objects we surround ourselves with *in-the-world* (Bragg, 2015).

Fig. 3.3: The Experience Probe.

that the observation maintained participants' objective independence from the researcher, minimal instruction on how to select the artefact's six default applications were provided. This meant that each participant could explore the touchscreen in any way they desired, so that the videoed observation could capture each participant's experience of using it, as **Internal | External 2010's** goal was not to usability test the artefact or its applications. The project was only interested in their experience of using it.

Stage 2A: The Underpinning Qualitative Methodology

The **Internal | External 2010** project adapted three established qualitative data collecting methods to achieve its phenomenological goal. These were the *Experience Probe* (Gaver, 1999; and Mattelmäki, 2006), videoed observation (Brun-Cottan, 1999; and Designing With People, N.D.), and two semi-structured contextual interviews (Barriball & While, 1994; Sorrell & Redmond, 1995; Annells, 1996; Earle, 2010). These methods were key in the context of developing a new *Visual Phenomenological Methodology*, by helping to facilitate

the collection of sensory data in a hermeneutic phenomenological inquiry. Many of these qualitative methods were established, and already used by researchers within Interaction Design. So the decision to adapt existing methods, meant that a triangulation of methods could be utilised when it came to organising, analysing and synthesising the collected sensory data.

Stage 2B: The Observations

Task 1 took place between September and October 2010. It was a pre-observational task, which each participant could do as soon as they wanted to, after signing the letter agreeing to take part in the project. Task 1 comprised of four postcards, with four separate images on the front, and four separate questions on the reverse (see Fig. 3.4). It was designed to calibrate each participant's initial thinking about a personal experience.

Once the participants understood how to recognise 'an experience,' and to reflect on how they felt when within it, they would use the postcards. On the question side of the card, they were asked to write how such an 'experience' manifested itself to them (see Fig. 3.5). Task 2 took place in November 2010, after the participants' observation. They were advised to begin Task 2 as soon as possible, as it would afford them an immediate opportunity to record their experience while it was still fresh (see Fig. 3.6). The second task was an exercise in emotional collage, where the participants attributed their thoughts and emotions to an A4 image of the touchscreen, using stickers (see Fig. 3.7). The results of this task was then brought to the post-observation contextual interview. This helped facilitate a *dialogue*, regarding each participant's experience, in order to document the sensory data. These observations took place over a two-day period at the beginning of November, within the semi-controlled environment of the *Inspace* gallery. Each participant had a maximum of thirty minutes observation time, and as an ethical safeguard each participant could control that time in any way they wanted, bringing their observation to a halt at any moment they desired (Marshall & Rossman, 1999, pp93-94).

Each observation was recorded using a small hand-held digital video

Fig. 3.4: Experience Probe Task 1.

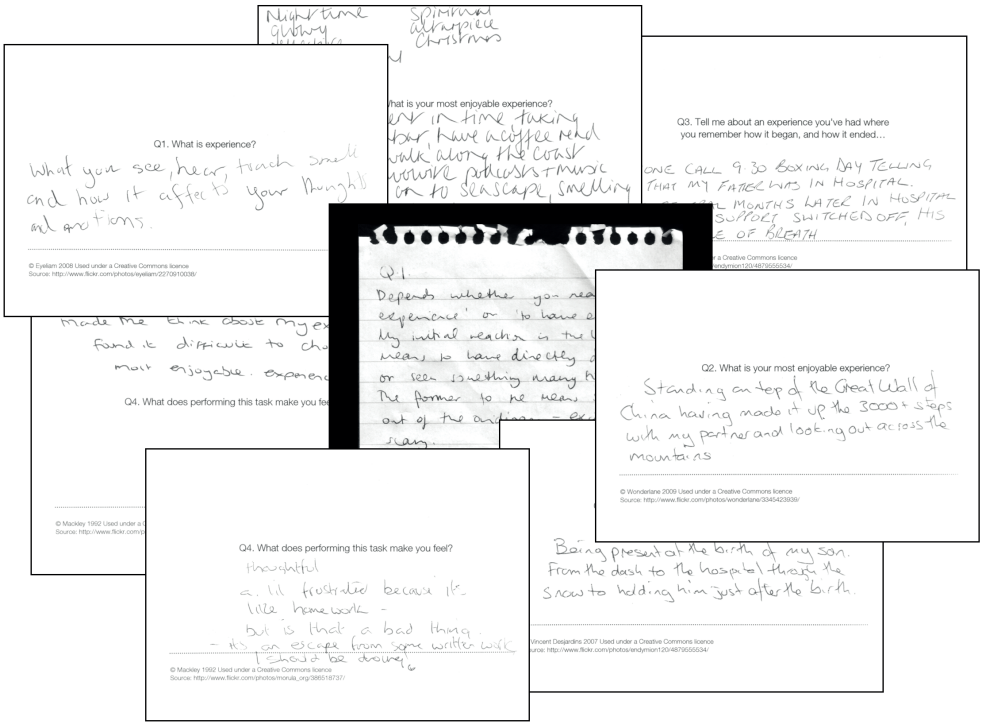


Fig. 3.5: Task 1 results.

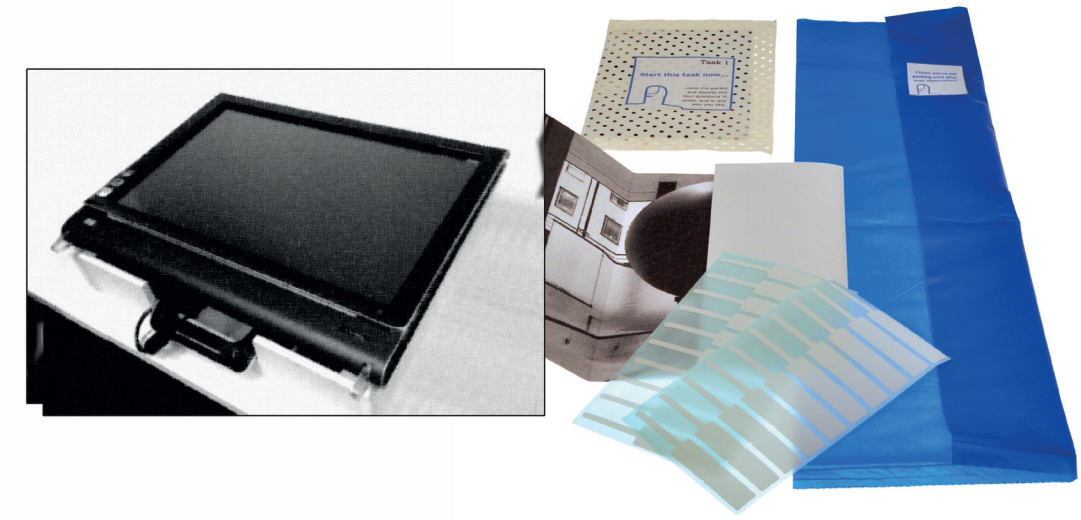


Fig. 3.6: Experience Probe Task 2.

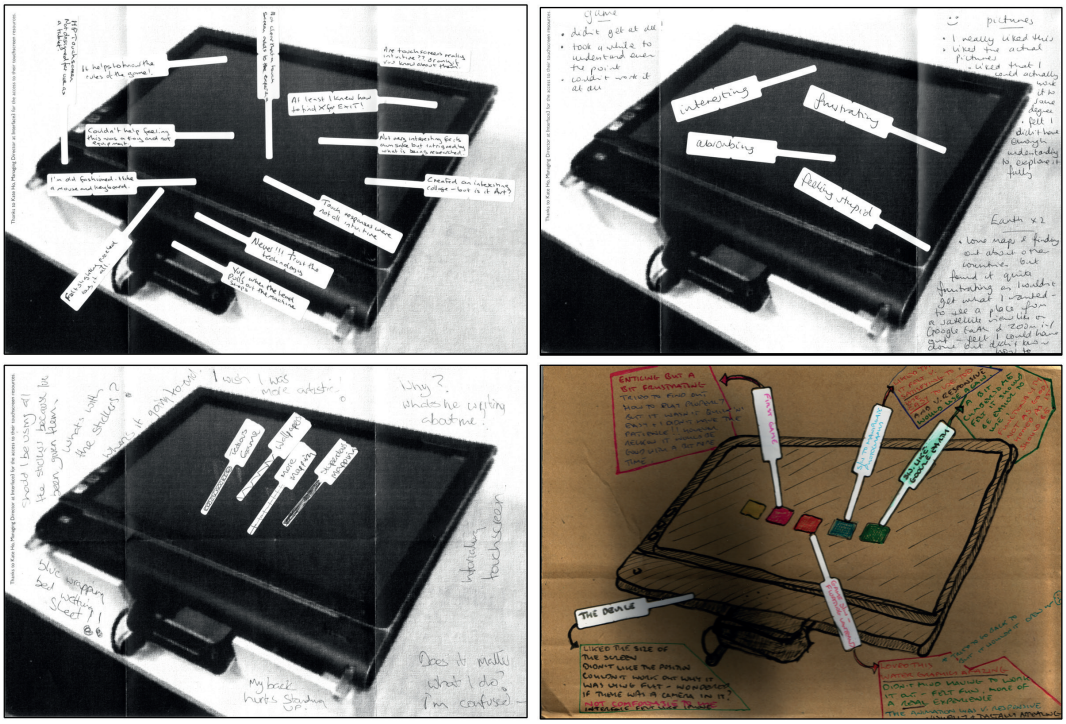


Fig. 3.7: Task 2 Results.

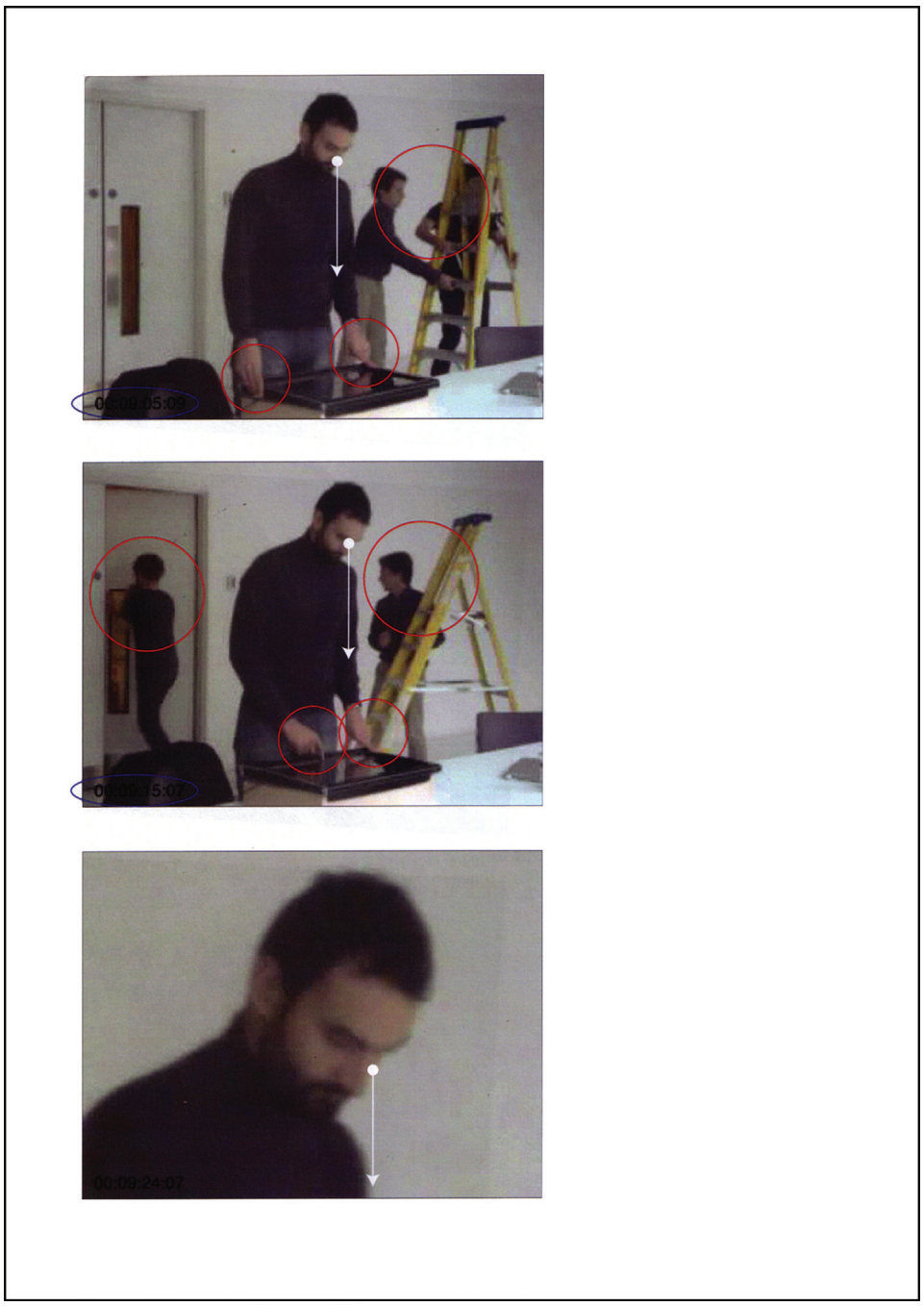


Fig. 3.8: Screenshots of videoed observation showing environmental variables with the controlled gallery environment that were used for later discussion at the post-observation interview.

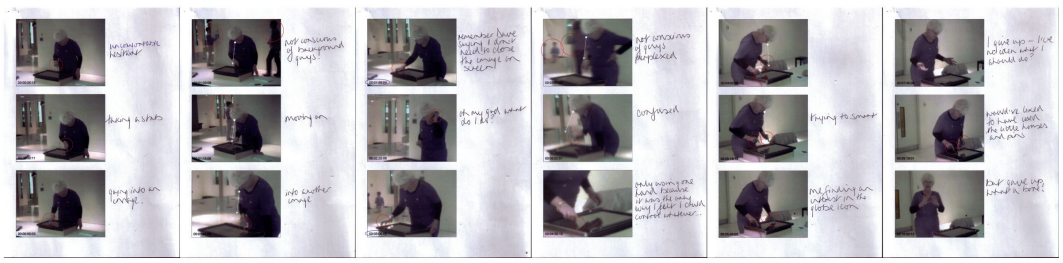


Fig. 3.9: A visually annotated video transcript.

camera, from a distance of about two metres, using the zoom feature. This allowed the observer (in this case the author) to take a non-participatory position within the observation, while remaining on the periphery of the participants eye-line. It also afforded the participant the opportunity to concentrate upon their actions, within their allotted time, with no communication with the observer. Therefore, the video footage captured the participants' body language during this set experience, generating visual evidence of their actions. Within a working, semi-controlled, gallery environment any distractions, created by the environment, could be recorded as legitimate variables between observations (see Fig. 3.8). Any such variables would be used to facilitate a *dialogue* during the post-observation interview.

This was an adapted form of video ethnography[4] (Brun-Cottan, 1999, p18), but in the context it was used, it became a form of video phenomenology. Norman stresses that, "Designers needs answers in hours, not months," and this means that designers "must adapt observational and other methods often developed in an academic context to be practical" for themselves (Norman, 1999, p16). As ethnography is a cultural description (Moustakas, 1994, p2), and this thesis is concerned with a phenomenological result, Norman's central argument was taken. If designers must adapt methods to suit their own immediate design needs, then the videoing of observations to capture phenomenological information must be adapted to reflect this purpose.

This video footage, in an act of *seeing-and-understanding*, was analysed into a visually annotated video transcript (see Fig. 3.9), to highlight any external signs of obvious moments of interaction (Dourish, 2004, p21). Each video transcript was then self-analysed, by each participant, in the post-observation interview. The recording of each observation on a video camera provided a permanent visual record, of the embodiment of the interaction, within the experience.

4 The RCA's UX research methodologies website designingwithpeople.org describe video ethnography as "videoing everyday events as they happen in context to capture people's interaction with one another and the environment around them" (Designing With People, N.D.). It is a tool used within rapid ethnography that help streamline the "basic principles of the technique are retained, while new methods of estimation speed up the process" (Norman, 1999, p16).

Stage 2C: The Semi-structured Interviews

A semi-structured interview is an established qualitative method, and is central to phenomenological research (Barriball & While, 1994; Sorrell & Redmond, 1995; Annells, 1996; Earle, 2010). In **Internal | External 2010**, two semi-structured contextual interviews were used, before and after the observations. These lasted on average forty-five minutes each. The pre-observation interviews took place during October 2010, and the post-observation interviews were in November.

The pre-observational interview followed the completion of Task 1, to gauge each participant's awareness of "experiencing an experience." This interview was based on remembering past experiences, in order to calibrate each participant toward identifying and recounting an experience. This was so that they would be able to communicate the set experience that formed the observation. The post-observation interviews followed the completion of the *probe's* Task 2. These focused directly on the shared experience within *Inspace* of using the touchscreen. The interview questions encouraged deeper and richer detail in each participant's reflections on their *probe* tasks and observation experience. Phenomenological researcher van Manen, reminds the researcher to, "keep the question (of the meaning of the phenomenon) open, to keep (…) the interviewee oriented to the substance of the thing being questioned" (1990, p98).

The semi-structured nature of an interview acknowledges an individual's use and understanding of vocabulary. Words may mean different things to each person. To capture the detail of what was said by the participants written notes recorded their responses, in accordance with established qualitative methods. Audio recordings of each interview supplemented these notes. Each interview was recorded using an iPhone app, and later transcribed and archived for future use. The semi-structured form of each interview was based on the eight components of a *phenomenology of enjoyment* (Csikszentimihalyi, 1990, p49). These components influenced the nature of the questioning, but

were never explicitly communicated to the participants. As this would bias the participants' reflections of their experiences.

The collected sensory data was organised during December 2010. The organising of this data record was a mix between 'paper-based' records (the *Experience Probe* returns and interview notes), and digital records (interview audio files, transcripts, and video files). All the files were then digitised, and stored in a folder system on a hard drive. The full analysis and synthesis of this sensory data, was not performed during **Internal | External 2010**. This would be done in the second and third practical projects, as the purpose of the first practical project was to generate sensory data.

3.1.3 Visual Communication Outcomes

So far in the **Internal | External 2010** project, the discussion has focused on philosophies, qualitative methodologies, Semiosis and Interaction Design. It would become problematic to lose sight of where, when, and how *Visual Communication* contributes to the creation of this new *Visual Phenomenological Methodology*. So, it is important to now briefly outline how *Visual Communication* was implemented within the outcomes of the first project. These outcomes took three visually communicated forms: the *Experience Probe's* packaging design, Task 1, and Task 2. The point of Task 1 was to calibrate participants' ability to be able to recount an experience. Task 2's point was to quickly record reflective thoughts, in the participants' own words as close to the event as possible, on the experience that had just been observed. This was to augment the sensory data collected during the observations and interviews. In order to prepare to calibrate participants' thinking about an experience from their own perspective (even before they opened Task 1), began with the *Experience Probe's* visual communication.

The design decision to present the *Experience Probe* to the participants through visually aesthetic and tactile materials, such as metal, card, paper, plastic, wood and stickers, visually communicated a sense of intrigue and playfulness. The design of its outer packaging suggested a ludic quality

to the *Experience Probe*. In order to entice each participant to engage in the research project, the *probe's* tin was sealed with a thin outer sleeve wrapper, which the participants had to break open to begin. Each *Experience Probe* tin was a numbered limited edition, which added a sense of exclusiveness to the project (see Fig. 3.4).[5] Inside the *probe* were two tasks sealed within opaque, tactile materials. Task 1 was sealed in a plain package of thin perforated card. This allowed the top image of the postcards to be partially perceived through the wrapping. This packaging was glued around all the edges, so that the participant had to commit to ripping open the wrapper to get to the postcards. This created an existential moment of decision to rip the seal to complete the task. The rationale for this was based on Mattelmäki's statement on *probe* use, to improve the possibility that the participants would want to open and then complete the tasks.[6]

Mattelmäki states that, "innovative methods typically produce visual and verbal knowledge for delineating and discovering design opportunities (…) and ideas are conveyed straight to the designers through visual methods" (2006, p32). To ensure that the participants engaged with the tasks, to externalise their experiences as sensory data, the communication of what to do as part of a given task was achieved through making visual communication decisions. This meant that the *Experience Probe* had an aesthetic, visceral level to its visual communication, in order to facilitate participant engagement, through facilitating a desire to engage with their tasks as 'homework.' Don Norman describes this visceral level of user experience as the immediate level of engagement, that is then followed by behavioural and reflective levels (2005, pp21-24). The visceral level focuses on the immediate qualities of what is experienced. In the case of the *Experience Probe*, this meant that the participants' response to the tasks inside, was facilitated by what the *probe's* packaging visually communicated. The design of Task 1 was postcard-based.

Using four postcards with an image and a question on each (see Figs. 3.4 and

5 Inside the *Experience Probe's* metal case was a certificate of their involvement, made out of a sheet of balsa wood glued inside the lid.

6 Only one participant declined to continue the project, while everyone else actively engaged with the tasks without micro-managing.

3.5), this calibrating task was designed to elicit memories of each participant's previous experiences to help them document their experiences. This generated useful sensory data for discussion at the first interview. The relation between a postcard image and its questions was on an abstracted level. The postcards were designed to accentuate the level of perceived intrigue, therefore, the images were carefully selected to provoke each participant to question the image's significance to its question. These postcards were more circumspect in what they signified. As the intention was to facilitate the participants' own responses, the postcards deliberately visually communicated on a pragmatic semiotic level to provoke the participants to think.

The first postcard featured an image of a tattoo, and used the question, "What is experience?" to subconsciously suggest a sense of embodiment. The second postcard featured an atmospheric image of gilded frames, and rich reflections of light sources. This tied into the question, "What is your most enjoyable experience?" The third postcard featured an abstract image, which suggested an event emerging out of a void, leading to something 'off-stage' to the right. It had the associated question, "Tell me about an experience you've had where you remember how it began, and how it ended…?" Finally, the fourth postcard featured an image of a shared experience from several perspectives. This card featured the question, "What does performing this task make you feel?" to create a sense of reflection, about the participants' own current experiences, of completing the task. Each image had been carefully selected to provoke a personal response in each participant, to ponder how the relationship between an image and question relate[7] (see Fig. 3.4).

As Task 2's focus was on generating reflections on what had taken place during the observation, it employed a technique that the author called

7 The first postcard's question was frank, provocative and uncompromising in its directness in requiring the participant to answer it. Its image presented a close-up of something happening to/in/and around the sense of *Being-there* (*Dasein*). The second postcard was to subconsciously establish a connotative message of framing and enlightenment around an experience. Its image visually communicated multiple possible reflective perspectives, to visually reinforce the message of framing an experience, in order to "bring it to light" in order to share it. Its question was designed to get the participant to reflect on what was an enjoyable experience. The third postcard is to be read left to right. Its image was intended to suggest a beginning, a middle, and a consummation when read this way. The participant that answers this question needed to frame an experience that had a beginning and a definable end. Finally, the fourth postcard connected to the previous question to get each participant to reflect, on reflecting, on an experience. It's image, therefore, featured people 'pondering' in a space, from different perspectives.

'emotional collage.' The task was physically composed of a folded A4 black and white photograph of the touchscreen that they[8] used during the observation. What made it an emotional collage was using the white stickers on the photo (see Fig. 3.10),[9] so that each participant could reflect honestly on what they had just done during the observation (see Fig. 3.6). On the Task 2 packaging, soon after their observations participants were directed simply to, "record your thoughts on the observation in any way you like." This created an immediate opportunity to record what they honestly felt during their experience. To avoid any advance notice of what the task would ask them to do (therefore biasing the reflection before the observation finished), the task was wrapped and sealed in an opaque blue plastic sleeve to prevent any visual hint at what was to come.

Visual Communication deals with visually framing and transmitting messages through a visual rhetorical positioning and operates on a level of "structured clarity" of message "to cut through all this clutter, even with the merest whisper" (Bergström, 2008, p60). So to subtly diminish the photograph's importance in the mind of participants (in favour of recording their own thoughts on the crisp, blank, white labels), the touchscreen in the photograph was digitally distressed using subtle visual noise. A sense of fuzziness was created, to facilitate structured clarity to what needed communicating in the emotional collage. This visual communication technique of adding 'noise' changed the participants' own *perspective of reception*, opening them up to be more reflective.

Also as part of the design of both the tasks and the *Experience Probe* the need for user written directions were minimised. Each task packaging had simple written guides, which were crafted typographically, to give just enough information, in a small amount of space (see Fig. 3.11). This approach

8 During the observation participants were videoed and photographed, as they would not be able to perform the task, and take their own photos of that experience, or recounted experiences they had had in the past. The design of the visual communication of this task, indicated the task's ludic qualities to each participant, which was immediately communicated through the design of the packaging that enveloped the photo and stickers.

9 In order to visually communicate participant reflections on the photograph, blank jewellery labels that had a 'stalk' were used. This label stalk provided an affordance that would 'point' to an area on the artefact image that provoked a emotional reflection.

of minimal structured clarity, facilitated through typographic manipulation, fitted into a phenomenological framework much more successfully to generat sensory data during the **Internal | External 2010** project, aiding a successful development of the *Visual Phenomenological Methodology* in the second and third projects.[10]

The completion of this first practical PhD project officially ended with the final interview and the archiving of the sensory data record. This then led on to the second practical PhD project, The Dynamic Sinsign Project, in which this sensory data record would begin to be analysed by the nascent Visual Phenomenological Methodology.

3.2 The Dynamic Sinsign Project – The Second Practical Project

The Dynamic Sinsign Project took place between September 2012 and June 2013, and developed the early steps of the *Visual Phenomenological Methodology* (**VPM**) using the collected sensory data from **Internal | External 2010**. The main purpose of the second project was to begin to synthesise Hermeneutic Phenomenology, Semiosis, and *Visual Communication* into *hermeneutic-semiosis* to facilitate the visual interpretations of a lived experience. Therefore, the goal of this second practical PhD project was to explore how the first turn in a *visual hermeneutic circle* would work in practice. This was important as the **VPM** needed to reveal to interaction designers the *essence* of a lived experience, in a form that would be useful visual stimuli.

The Dynamic Sinsign Project use of the term 'methodology' is in danger of becoming clouded, as in this PhD it refers to two different forms of methodology. The first form is the underlying qualitative research methods, which each project applied in order to achieve its aims. The second is the

10 In Appendix A the entire *Visual Communication* outcomes from the Internal | External 2010 project can be found.

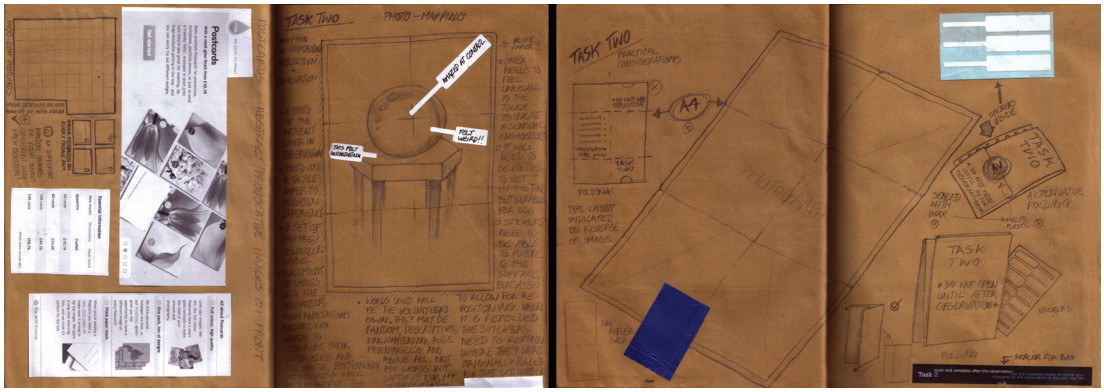


Fig. 3.10: The design of Task 2.

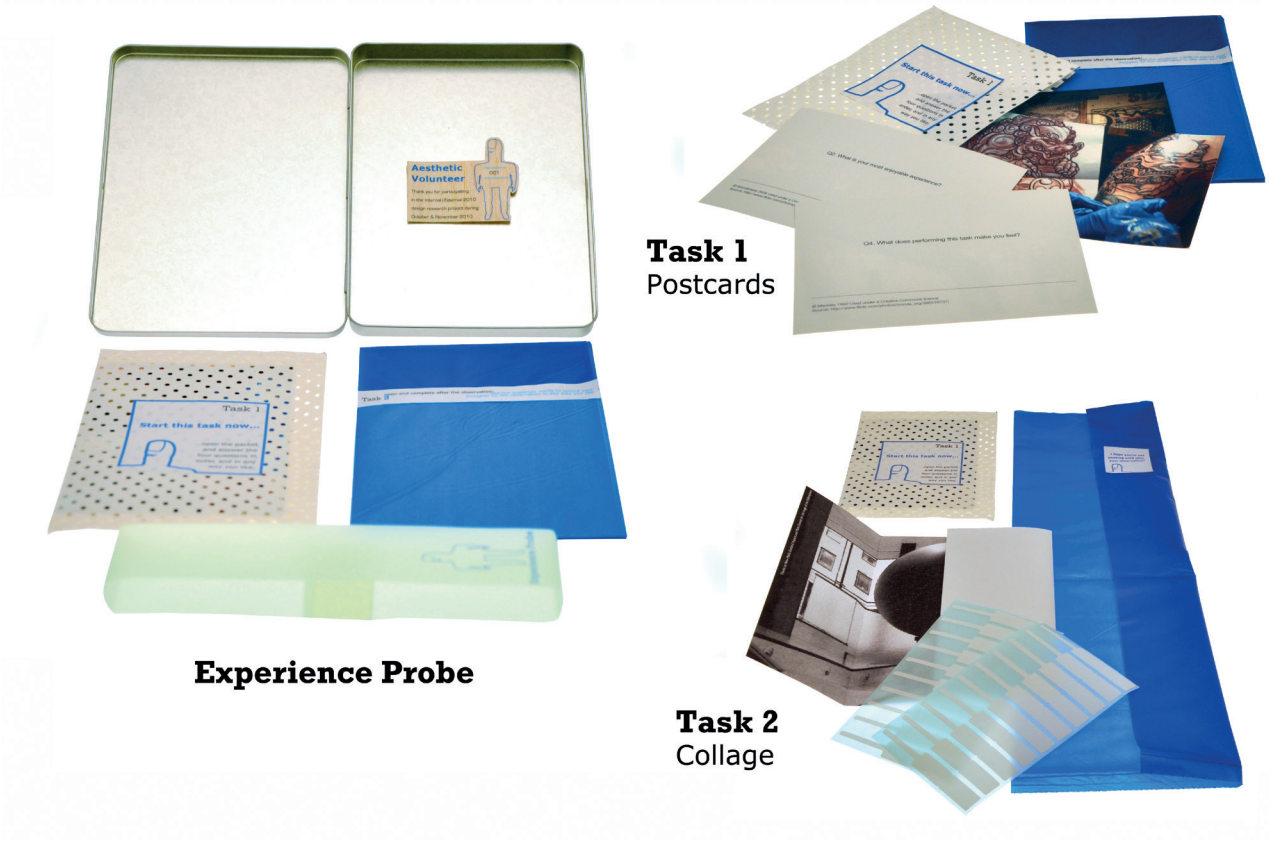


Fig. 3.11: The complete Experience Probe.

development of the *Visual Phenomenological Methodology* across all three practical projects. To avoid confusing the reader as to which form is being referred to, the *Visual Phenomenological Methodology* will from now on only be referred to as **VPM**. This will leave the use of the word 'methodology' to refer only to the qualitative methodologies used within the practical projects.

Within **The Dynamic Sinsign Project**, the data gained from Task 1 of **Internal | External 2010** was selected to test the development of the initial steps within the **VPM**. To do this, the sensory data from three transcripts of personal experience from Task 1 were analysed, following a general qualitative method of reading or watching each data record again, and again. This was to discover any common experiential moments within the experience from an individual's perspective, to qualitatively code the sensory data[11] for further analysis by the **VPM**. The common experiential moments within each personal lived experience that are identified from coding, would then be visually interpreted. This act would begin to reveal individual emotional and behavioural responses, and visually be structured semiotically by employing a *Dicent Sinsign* (the fourth Sign in Peirce's ten classes of semiotic Signs.)[12] This practical experiment was the first turn in the **VPM's** *visual hermeneutic circle*, and this work and its implications will be outlined in this chapter. The new synthesis of *hermeneutic-semiosis* will be explained in more detail, using examples of the contribution that visual communication techniques made in this process. But before this specific critique happens, **The Dynamic Sinsign Project**'s purpose, goal, outcomes and the methodology used to achieve this practical project will be outlined in detail.

3.2.1 The Project's Purpose, Goal and Outcome

The main purpose of **The Dynamic Sinsign Project** was to explore how the **VPM's** *hermeneutic-semiosis* could begin to aid interaction designers to

11 Following the van Kaam method (van Kaam, 1959, p68; and Moustakas, 1994, p120).

12 Peirce describes this fourth Sign as a *Dicent Sinsign*. This is a Sign of direct experience, and is itself constructed from two lower order Signs (see Fig. 3.13). The third Sign, Peirce calls a *Rhematic Indexical Sinsign*. This nested Sign in the *Dicent Sinsign*, frames crucial information using an *indexical* representation. The other nested Sign is the second Sign. Peirce calls this a *Rhematic Iconic Sinsign*, and in a *Dicent Sinsign* it indicates the qualities of the direct experience, through an *iconic* representation.

reveal an experience, through visual interpretations. Its goal was an appraisal of a practical way of synthesising Semiosis, in this case a *Dicent Sinsign* (Peirce's fourth semiotic Sign), with Hermeneutic Phenomenology in order to visualise an interpretation of the experiential moments of an individual's lived experience. In doing so, the first turn in a *visual hermeneutic circle* could be developed and evaluated.

The Dynamic Sinsign Project's outcomes would take the form of sets of *Dicent Sinsigns* that visually interpret each individual participant's experiential moments of their experience. Taken from their Task 1 sensory data responses, each visually interpreted image would clearly be a *Visual Communication* outcome that communicates the sense of context, and of the existential quality of that experiential moment. This phenomenologically reveals each participant's own inner thoughts that are *parts* of a *whole* lived experience. The next stage of the **VPM** would examine these individual experiential moments for what van Kaam and Moustakas call *invariant constituents*. These are possibly common moments that are shared beyond the individual experience, and are indicative of being general experiential *themes* that would reveal the *essence* of the lived experience.

3.2.2 The Dynamic Sinsign Project Methodology

This section will focus on outlining the three forms of qualitative methodology that helped to achieve **The Dynamic Sinsign Project**'s goal. The first form focused on the coding method used to phenomenologically analyse the data record. The second form focused on synthesising Peircean Semiosis, with a Heideggerian *hermeneutic circle*. Finally, the third form focused on the synthesis of phenomenological methods and theory, with Peircean Semiosis, in order to form the *hermeneutic-semiosis* that powers the **VPM**.

Adopting a Phenomenological Coding Method (1st Form)

Lopez and Willis (2004) state the importance of positioning a study clearly, within one of the two philosophical schools of Phenomenology. They warn

that "implementing a method without an examination of its philosophical basis can result in research that is ambiguous in its purpose, structure, and findings" (p726), affecting its findings, rigour, validity and reliability. To provide a practical structure for developing the **VPM**, the van Kaam Method of Analysis of Phenomenological Data (which had already been modified by Moustakas (1994)), was re-modified to a hermeneutic model. Using van Manen's hermeneutic techniques (1990), a methodological position within a Heidegerrian Hermeneutic Phenomenology could be established, rather than a Husserlian eidetic Phenomenology. An interpretative approach is more useful "in examining contextual features of experiences that might have direct relevance to practice," as a hermeneutic framework can, "enable the researcher to bring to light hidden features of an experience that would be overlooked in a purely descriptive approach" (Lopez and Willis, 2004, p734). But this was a technically difficult synthesis to do.

Moustakas adapts two phenomenological research methods in his book Phenomenological Research Methods (1994). These are the van Kaam and the Stevick-Colaizzi-Keen methods. He adapted these into an eidetic framework that follows Husserlian transcendental phenomenological processes. While Moustakas' adapted methods are very useful in developing a **VPM**, their adapted phenomenological structure was not interpretive (see Appendix B). So before applying a method into the **VPM** some careful extra modification was required. Out of these two methods, the van Kaam method of analysis was more suitable to be modified into the **VPM**.

As van Kaam was originally a psychologist, and a priest who was well versed in the existential-phenomenological literature, his methods underlying the framework was more amenable to synthesising with an interpretative, hermeneutic approach, such as van Manen suggests in his book *Researching the Lived Experience* (1990). Ihde relates that there is a precedent for a modification from an eidetic model to a hermeneutic one. He says, "Hermeneutic in its broadest sense means interpretation, and rules give shape

to an interpretation,"so eidetic terms such as "epoche and phenomenological reductions may also be called hermeneutic rules, since they provide the shape or focus of the inquiry" (Ihde, 2012, p17). So taking van Kaam's structure as a set of 'rules,' any Husserlian emphasis on these rules were mapped and replaced with a Heideggerian emphasis. Therefore it is now crucial to map out Moustakas' structure, and offer a rationale as to why, where and how it was adapted it to a hermeneutic phenomenological model. A more detailed explanation of this adaptation can be found in Appendix B, but it will be quickly summarised as follows:

FIRST TURN IN THE VISUAL HERMENEUTIC CIRCLE

Step 1: Moments of Experience… Spotting, abstracting & labelling moments

To be able to identify a 'moment' it needs a discernible context and a quality, in order to proceed with a visual interpretation of it. So, building on the van Kaam method that Moustakas adapted, the researcher-interpreter must, "list every expression relevant to the experience" (Moustakas, 1994, pp120-121). This means that in this step, the sensory data is examined to identify 'moments,' which phenomenologically shape that experience. Once all the moments are identified in the sensory data and labelled, the visual interpretation can begin.

Step 2: Core experiential moments, visually interpreted

2a: The Object in the Moment

Each experiential moment needs a focus as to what makes it a moment. Both van Kaam and Moustakas describe this 'moment' as being *part* of the *whole* experience (*constituent*), and as such it is one 'moment' that is common to everyone's experience of that form of interaction (*invariant*). In Step 2a, each 'moment' (*invariant constituent*) that has been coded in the sensory data of Step 1, is to be visually interpreted. This 'moment' is the *Object* of the visual interpretation, which the *hermeneutic-semiosis* within this step will focus on. In some cases this moment is an abstract thing (such as listening), or more tangible, such as a specific action. With this moment identified then Step 2b begins…

2b: The Context for the Moment

The *Object* in each identified moment, now needs a context to provide ground to be visually interpreted and communicated, as a core moment of that experience. This context is specific to each moment, and it may be clearly stated in the sensory data. But if it is not, it may only be suggested and found 'reading between the lines' of each set of user sensory data. Such as in a testimony or by studying any user observations. Once the context has been identified, then Step 2c begins…

2c: The Quality

In attempting to understand a moment's quality through visual

interpretation, the quality – which is after all an abstract thing in itself – needs to be carefully visualised. The use of metaphors or suggestive associations helps communicate qualities of experiential moments. But any visual interpretation must be obvious and immediately understood. Once completed then Step 3 begins…

Step 3: A Visual Interpretation - Part of an experience, visually interpreted

By putting all the three stages from Step 2 together (*Object* / context / quality) a moment within an experience can then be visually interpreted, to phenomenologically reveal and communicate what the user saw / felt / did. Through the act of visual interpretation deeper insights can be revealed, about what motivated the user, during that moment that cannot be made by mental modelling or designing personas. The understanding about the *whole* experience, emerges by understanding the *parts* that form it, through this interpretation process. This hermeneutical step replaces Moustakas' more eidetic step of clustering.

Step 4: One's Experiential Moments - A visual interpretation of a person's experience

Once all the identified moments from each user in the study group have been visually interpreted, these images form experiential *parts* that when placed in sequential order, they form a visual thematic storyboard of what that user saw / felt / did during the lived experience. The number of storyboard frames equals the number of moments identified in Step 1. But this still remains only one user's visually interpreted experience.

A real phenomenological understanding of what happens within such an experience, needs to be understood, by repeating Steps 1-3 for EVERY user in the study group, to form a collective experience. It is only then that the identified moments of an experience begin to show what is variable and what isn't. It is the unvarying moments (that will become clustered *themes* in the second turn of the *circle*), which communicate what happens in the experience. Once this process of analysis and visual interpretation has been completed, then the second turn in the *visual hermeneutic circle* begins with Step 5.

SECOND TURN IN THE VISUAL HERMENEUTIC CIRCLE

Step 5: Clustered Common Themes - Revealing the shared experiential thematic structure

Once all the users' moments have been sequentially ordered, the non-varying (*invariant*) *themes* can be identified and clustered around commonalities. These are indicative of the *parts* that are structuring the *whole* experience. This phenomenologically is a reduction of what has been revealed so far. Any *themes* that are unique to only one user are dismissed, as they remain idiosyncratic and do not qualify as *themes* within a collective experience. At this stage, some terms that are too similar are also clustered. Themes form the visual language to interpret the collective experience structure. This is where the adaptation takes its own hermeneutic departure from the eidetic original laid out by Moustakas. As van Kaam did not specify any further methodological steps. Moustakas developed his version with three additional practical steps, which make the phenomenological methodology one that is for practice-based researchers, such as nurses or designers. His outcomes focus on the eidetic phases of written description of the revealed phenomena. These additional steps were also adapted for a

hermeneutic-based version that used *hermeneutic-semiosis*.

THIRD TURN IN THE VISUAL HERMENEUTIC CIRCLE

Step 6: Experiential Structures - Revealing the structures of experience

From the clustering of each set of *themes* that are *invariant* (e.g. are experienced by the majority of participants), a new general image is made to summarise each core theme. By being guided by the original user testimonies, this new visual interpretation is a synthesised summary of what was experienced. It takes the interpretation beyond one single personal testimony, to reveal the shared experiential structure of the *whole* lived experience. This step safeguards the interpretations made of what real people saw/felt/did, by returning to what their sensory data had revealed, instead of what the designer-interpreter may wish to illustrate. These clustered *themes* each reveal the common experiential structure, which will lead to the final full visual interpretation in Step 7.

FOURTH TURN IN THE VISUAL HERMENEUTIC CIRCLE

Step 7: The Visual Interpretation: Communicating the composite experience In the final step, a sequential image reveals the experiential structure of how people saw, felt and reacted within the lived experience, from the *parts* of the *whole* experience, which affected individual users. This provides a visual story that lets "something be seen" (Ihde, 2012, p61), with an experiential beginning, middle and end, which is created from the clustered visual interpretations of each *invariant* theme. These *parts* are formed and placed in a general order, which comes from one final re-examination of the sensory data. This ensures that the sequential placement forms a collectivised order that reflects the common experience. This final image is superficially similar in form to Step 4's outcome, but it is no longer a single personal perspective on the *whole* experience. Instead it is a final sequence of what was generally seen, felt and done.

Modelling Semiosis onto a Hermeneutic Circle (2nd Form)

When beginning this second PhD practical project, it was important to experiment with visual communication techniques to examine three things:

Q1. How can a hermeneutic circle be visualised, in order to understand how to integrate it into the VPM?

Q2. What does the structure of a Dicent Sinsign look like, in order to communicate it to anybody else?

Q3. How would a hermeneutic circle synthesise with Peircean Semiosis?

Q1. Visualising a Hermeneutic Circle

In Chapter 2's contextual review a *hermeneutic circle* was described (see 2.3.4). But to begin to understand what a *hermeneutic circle* actually is, and how

it works, typographical diagrams[13] were created using visual communication techniques such as typography and diagramming, the interrelating phenomenological turnscould be explored through manipulating type into images (see Fig. 3.12 and Appendix A, pp48-51). The interpretive turns of a *hermeneutic circle* were represented using concentric circles for each turn, which got smaller and smaller. Each concentric circle represented a different step through the **VPM's** four interpretive turns (indicated by the letters a, b, c, and d in Fig. 3.12).

Each concentric circle held a significance to what was being interpreted at any one time. Letter (a) the studied lived experience and the word '*whole*' (at the end of the dotted trajectory line), represents the final interpreted conclusion as to what was revealed. The letter (b) referred to all the individual's experiential moments that are examined separately as *parts* of the *whole* experience. Any overlapping b's represent clusters of common experiential moments that are thematically *invariant*. Next, the *whole* experience is represented by the letter (c), which is examined to ensure that its experiential *parts* are understood in the context of the *whole* lived experience. Finally, the letter (d) referred to the context and horizon that the study takes place in. This ensures that no deviation or bias has affected the interpretation, and reaffirms that the revealed experiential *essence* has been rigourously analysed by the **VPM**.

By creating this diagram early on in **The Dynamic Sinsign Project** the first turn in the *hermeneutic circle* could be identified and the use of a *Dicent Sinsign* could be experimented with. The typographical diagrams helped set the parameters for this second practical project.

Q2. Visualising a Dicent Sinsign's Structure

In order to understand how a *Dicent Sinsign* is structured, and the form that the Semiosis takes, it too was visualised into a diagram (see Fig. 3.13). This was based on Pierce's own diagram showing his ten Sign classes (see Fig.

13 This diagram, in itself, can be described semiotically as a *Rhematic Iconic Sinsign*. It shows one possible way (a *rheme*), of immediately communicating (using a *sinsign*), the concept of the *circle* of interpretation (the *iconic* representation of the *Object*).

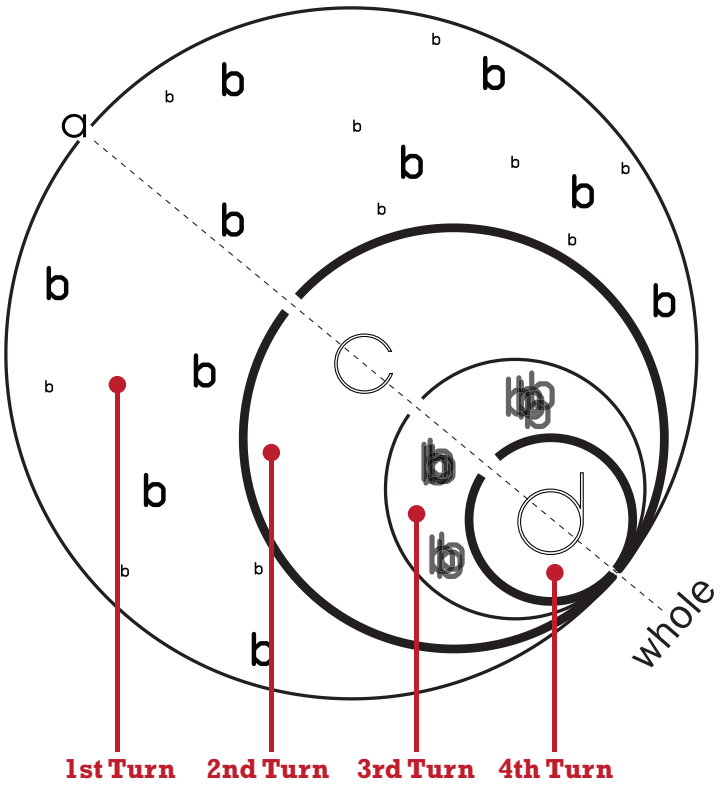


Fig. 3.12: A hermeneutic circle visualised.

2.23), as it referenced the boxes he used to represent each Sign class. The *Dicent Sinsign* was represented as a large square, within an all-encompassing circle. This signified its own identity as a single, specific form of a Sign, which nests two lower order Signs that help it communicate a direct experience. Within this circle the *Dicent Sinsign* was dominant, with the two lower-order Signs that a *Dicent Sinsign* uses to communicate, being represented by smaller squares. This was to indicate that these lower-order signs are subservient. One square represented the *Rhematic Iconic Sinsign* (2) to illustrate the experiential qualities of the interpreted moment. The second square represented the context for the experiential moment represented using a *Rhematic Indexical Sinsign* (3).

This diagram became crucial to understanding what **The Dynamic Sinsign Project**'s outcomes would be. It not only helped the author to visually understand the intrinsic relationships of Semiosis within a *Dicent Sinsign*, but as a diagram, Fig. 3.13 also helped to quickly visually communicate a *Dicent Sinsign* to others.[14]

14 It was first used in 2013, by the author, during a *User Experience Professionals Association* talk.

Q3. Synthesising a Hermeneutic Circle into the VPM

It was important to understand how an application of Peircean Semiosis into a *hermeneutic circle* (as part of *hermeneutic-semiosis*) would happen. To visualise how this process would work another typographic diagram was created (see Fig. 3.14) and annotated. By taking the existing Fig. 2.19 diagram of Semiosis as the reference point, a simplified version of the visualisation of a *hermeneutic circle* (Fig. 3.12) was overlaid. This was rotated to align the Semiosis trajectory through a *hermeneutic circle*, showing how a visual interpretation would work in the first stages of using the **VPM**. This typographic diagram proved crucial for the author to understand the theoretic synthesis through using visual communication. As a practical methodology, the **VPM's** interpretive turns would generate visual interpretations, rather than textual descriptions of a lived experience. In creating the diagram it suggested to the author the term "a *visual hermeneutic circle*" was a more accurate term, which was then adopted.

Employing the Visual Hermeneutic Circle (3rd Form)

In **The Dynamic Sinsign Project** the sensory data collected from Task 1 of **Internal | External 2010** was used (question three or four of the participants' responses), which provided rich narratives on personal lived experiences. These were strong accounts to analyse of individuals' past personal experiences, rich in phenomenological detail. The strongest sensory data from three participants' Task 1 cards and audio interviews were selected to experiment with, following guidance of good qualitative research practice.[15]

These rich narratives would each have a definitive beginning, middle and an end to it, so that the **VPM** had the sensory data to visually interpret. The three participants' experiences that were selected were:

- 'User B' and their Dunbar Day Trip;
- 'User G' and their climb of the Great Wall of China;
- 'User I' and their Haunted House Ride.

The remaining eight accounts were then held in reserve. Each of these

15 Using project, setting and interpretive notes to record crucial context (Richards, 2009, pp56-57).

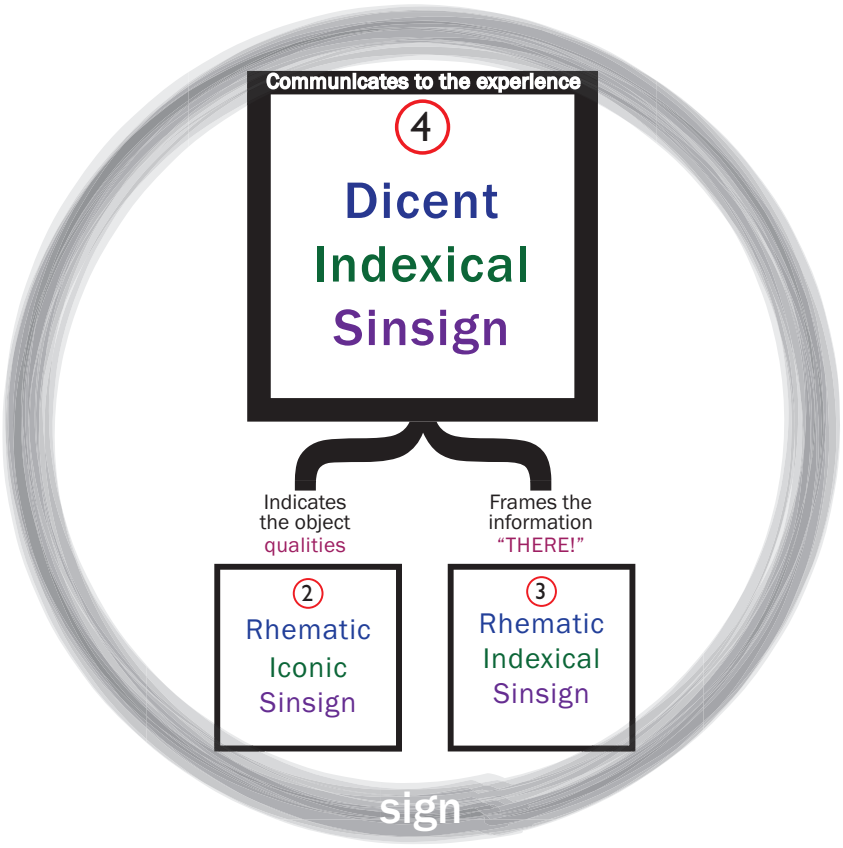


Fig. 3.13: A Dicent Sinsign

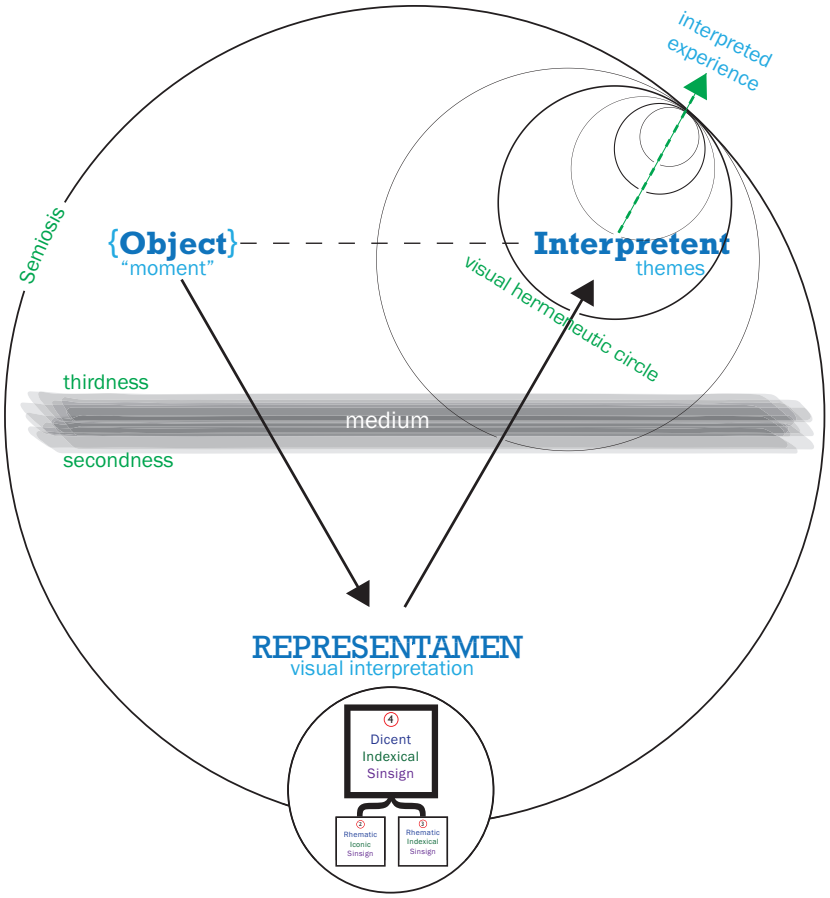


Fig. 3.14: An anatomy of *hermeneutic-semiosis*

three accounts detailing 'an experience' were then visually interpreted, using the **VPM's** first practical interpretive turn of the *visual hermeneutic circle*. The judgment criteria for selecting these three participants was that the three experiences were all journeys. They each went from a point A to a point B, returning to point A again, and were the strongest testimonies that satisfied Dilthey's distinction of 'articulation of experience' (Bruner, 1986, p6) and Csikszentimihalyi's *autotelic* model of experience (1990, p67).

The important consideration at this stage of developing the **VPM**, was only concerned with experimenting with the methodologies to develop it.[16] The focus of the final practical PhD project would be on reaching an understanding of a shared experience, through visual interpretation, using *hermeneutic-semiosis*. So at this point the focus shifts into an account of the actual methodological steps that were synthesised. To develop the **VPM**, the synthesis of Semiosis and Hermeneutic Phenomenology needs to be explained with more clarity. It is now important to outline the outcomes of **The Dynamic Sinsign Project** in the next section. This will be illustrated with actual visual examples of the use of *Dicent Sinsigns* within the structure of a *visual hermeneutic circle*, to demonstrate the initial steps in developing the first phases of using the **VPM**. These early *Visual Communication* outcomes would eventually inform steps 2-4 of a set of method cards,[17] which would be created in the final practical project for interaction designers to use the **VPM**. This will be discussed in section 3.3, but first it is important to focus on **The Dynamic Sinsign Project**'s *Visual Communication* outcomes.

3.2.3 Visual Communication Outcomes

It would become problematic to lose sight of where, when and how *Visual Communication* contributed to the creation of the *Visual Phenomenological Methodology* (**VPM**). So this section will now briefly outline how visual communication techniques were implemented in **The Dynamic Sinsign**

16 In line with a phenomenological study. Finally, although the VPM is a new methodology, the rationale was in line with the established qualitative methods for *User Research for Design* (Aldersey-Williams *et al.*, 1999).

17 These method cards would be developed in the final practical project.

Project. The first *Visual Communication* outcomes of this project were in the form of typographical experiments. These experiments in visual language helped visualise the theoretical positions, and the mechanics of the component parts of the **VPM**. These typographical experiments were formalised into formal diagrams (Figs. 3.12-3.14), to explain how the theoretical component parts of **VPM** works. In Appendix A (pp48-57), the full set of these typographical experiments and diagrams are presented. They demonstrate how the theory has been visually explored, and how the *hermeneutic-semiosis* would practically implemented through *Visual Communication* design. Added to this, the *Dicent Sinsign* as a function of *hermeneutic-semiosis*, was incredibly important in making visual interpretations. This fourth of ten Peircean semiotic Signs is a Sign that signifies a "direct experience" (Peirce, 1932 [2.257], p147).[18] Its implementation was an immediate indicator that the underlying *hermeneutic-semiosis* (that powered the **VPM**), could successfully develop beyond a theoretical point.

A Semiotic Sign Signifying Direct Experience

The internal structure of a *Dicent Sinsign* provided three useful markers in the participants' sensory data, which could identify important phenomenological elements to make sense of what was seen/felt/done during the lived experience. Through qualitative coding techniques these markers could be identified within each set of sensory data, which in turn revealed the individual experiential moments in the *whole* lived experience. These three markers comprise of the *Object* that identifies an experiential moment. This moment, in turn is identified through its experiential quality and its context. By looking for these three markers in relation to each other, they can be identified within each participant's recounted experience. In the sensory data these three categories are isolated to define each experiential moment.[19]

In analysing **Internal | External 2010's** sensory data, each identified

18 It visually communicates the direct experience (the *Object* to visually communicate) through signifying the quality and the context of the experience in a direct way.

19 The words used by each participant to describe these three categories would sometimes be far from obvious in the sensory data. They were not always immediately discernible to code, but they were always there.

Object was highlighted using yellow on red, its quality was highlighted in green, and its context in blue (see Fig. 3.15). As these markers also directly relate to how a *Dicent Sinsign* signifies a direct experience, this meant that any revealed experiential moment, could definitively be visually interpreted using a *Dicent Sinsign* to visually communicate it. Each set of three coded markers indicated one single experiential moment. This could be through three individual words or phrases found in the sensory data, which became the keywords used to then source relevant images. These image resources, would then be used to montage a visual interpretation of each experiential moment, to reveal its *essence*.

This technique was tested through three visual experiments, using experiences from the recounted experiences of 'User B,' 'User I,' and 'User G.' These three journey experiences, although totally disparate and unconnected in any geographical or personal sense, focused on journeys. Individually they were: a coastal walk (see Fig. 3.16a), a haunted house 'ride' (see Fig. 3.16b), and climbing the Great Wall of China (see Fig. 3.16c). Although completely disparate, they all had a clear beginning, middle and a culmination as Bruner had outlined (1986, p6) of returning to the starting point. This offered opportunities for comparisons of each completed set of visual interpretations, in the form of three different composite images. Each composite image would show visually interpreted, individual experiential moments, in chronological order (see Fig. 3.15). By viewing all three composite images together (see Fig. 3.16), it was possible to follow each participant's individual experience as if it was a film storyboard. This filmic comparison was useful on a level of immediate familiarity, to see the *essence* of what had occurred during the studied lived experience, according to each participant. The visual language used in visually interpreting each experiential moment, came directly from the qualitative coding of the topics, within each individual's account of their own experience. In this way, *Visual Communication* began to move from being a discipline perceived for just providing 'visual design;' to a discipline

Fig. 3.15: Example of qualitative coding of participant's experience.

that facilitates and enriches others' understanding of what it is like to interact *in-the-world*.

A Visual Example of Hermeneutic-semiosis in Action

To give a visual example of *hermeneutic-semiosis* in action can be seen in the images that were montaged for each visually interpreted moment. Continuing with the coded example from Fig. 3.15, a visual example of User B's testimony of a coastal walk on a day trip to the East Lothian seaside town of Dunbar, in Scotland, can be used. User B's journey took her past Dunbar golf course, along the coast and back again. At the point in User B's account of reaching the golf course, the following keyword/phrases were identified in the coding:

(*Object*) "I walk past right along the edge of the golf course and then I go to the other side"

(quality) "love the [sea] smells"

(context) "along the edge of the golf course"

The *Object* of this experiential moment is passing the course, and the remembered quality of this is the smell of the sea air as User B walked along the edge of the course. This gave the experiential context for this remembered moment. The *essence* of this moment was not the fundamentals of walking, but the sensation of User B being in that environment, and knowing she was near the sea. To communicate this, a visual interpretation of that moment of smelling was made. This visual interpretation was montaged by selecting

visual elements, from a set of sourced images[20] based on the keywords, saved into an image resource folder (see Fig. 3.17). In this visual interpretation it is clear that the salty sense of seaside smells (quality) are indicated through an overlay to the location. The fact that the path in the chosen photograph of the golf course leads the eye past the course that is only partially seen on its left-hand side (context). The entire digital montage of these elements (see Fig. 3.18), is what conveys the *essence* of that moment (*Object*). The whole montage is a single *Dicent Sinsign*.

How Semiosis Worked in Understanding a Lived Experience

How the visual interpretation is constructed is important to understand, both in terms of how it reveals the *essence* of an experiential moment, and how the Semiosis visually communicates this. In the example of 'Past the Golf Course,' the montaged image signifies the *essence* of that moment as a visual interpretation of what was seen and sensed by User B. The montage was a *Dicent Sinsign*, a semiotic Sign that communicated the singular experiential *essence* in visual terms. The moment of smelling was signified in the image as a semi-transparent nose and salt crystals. This was overlaid over an image of the path past Dunbar golf course. This context for the experience can be seen underlying the nose and salt. The signifying of the experiential *essence* is visually communicated within the *Dicent Sinsign*. The immediate recognition of the two elements of salt and smell by ***The Receiver*** is a *rhematic* act. The visual juxtaposition of a nose and salt crystals suggests a non-visible complex sensation of smelling. Using *iconic* images indicate to ***The Receiver*** the human sense of smell is being signified in a visual form. The culmination of this abstract sensation, in a real existent place, meant a context image of Dunbar golf course was used. This was *indexical* in nature. Nested together in a single *Dicent Sinsign*, the montaged image presents a one-off visual interpretation, that Peirce defines as a *sinsign*.

20 These sourced image resource came from quickly searching online for images of salt, Dunbar golf course, and 'smelling.' Suitable images were filed into an image resource folder created especially for this project. Searching for suitable images to montage can utilise Google Images, Google Maps, Flickr, Pinterest or a subscription-based image libraries.

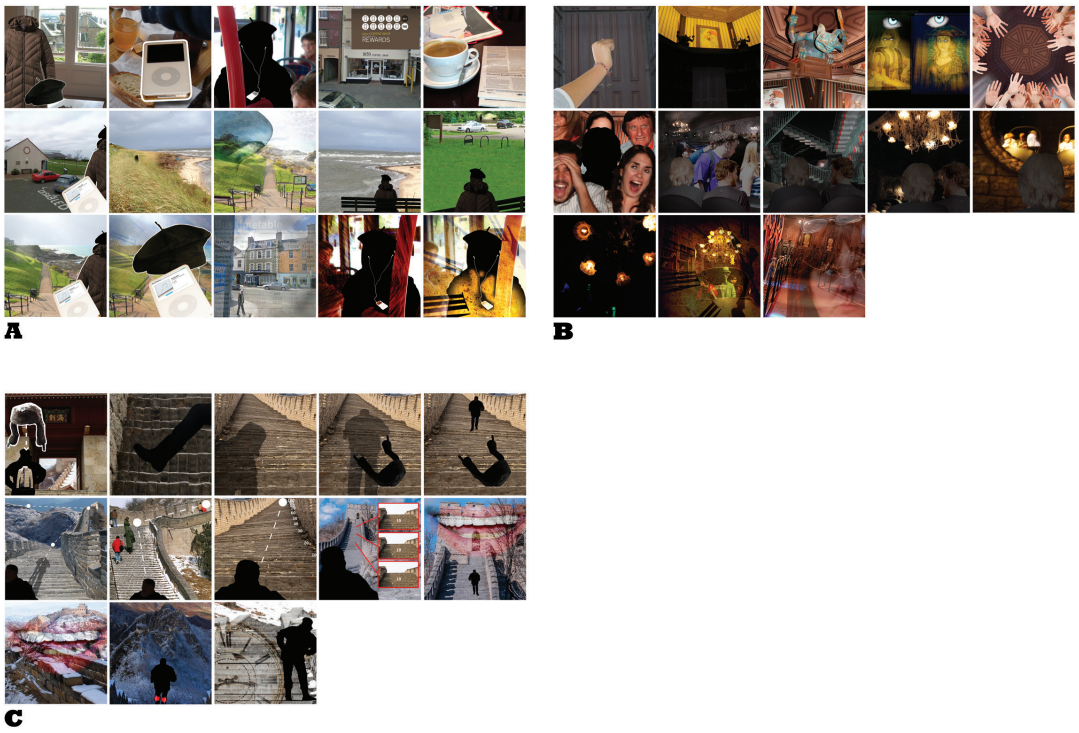


Fig. 3.16: Composite images of three participant's experiential moments (a) User B's Dunbar Day Trip, (b) User I's Haunted House Ride, (c) User G's Great Wall of China.

Fig. 3.17: Image resources to form a montage.

Phenomenologically speaking, what happens in the Semiosis can be summed up by something that van Manen describes as existentials. A person's *Being* — their sense of *self* — is constituent in four existential states, which aid reflection on a lived experience within a research inquiry (van Manen, 1990, p101). These four existentials form a unity of the *self* (*Dasein*) that is intricate, but although they cannot be separated from a lived experience, they can be

individually differentiated.[21] These states are:

- *Temporality* [lived time, or the subjective span of past, present and future];
- *Spatiality* [lived space, or sense of embodiment];
- *Corporeality* [lived body, or the physicality of *existing in-the-world*];
- *Relationality* [lived other, or the inter-relational existence we share with other *Beings*].

As a semiotic Sign of actual existence, a *Dicent Sinsign* can also be described as a visualised moment of temporal and spatial existence, as a relationship to an existent thing *in-the-world*. A successful reading of this Sign by ***The Receiver***, semiotically means that they existentially identify with the visual. The image pertains to an aspect of an individual's own previous existence. From a Heideggerian reading of this, ***The Receiver*** is a *Being-in-the-world* whose own sense of lived time/space/body/other (see Fig. 3.19) is manipulated to interpret meaning from the *Dicent Sinsign*. The four existentials that van Manen defines, "can be differentiated but not separated"[22] (1990, p105), so the structure of a *Dicent Sinsign* can be differentiated, but not separated when interpreting the meaning. To make a successful visual interpretation, ***The Receiver***'s own sense of *Dasein* (*Being-there*)[23] can be called upon, to complete the semiotic communication of a moment of the direct experience, of another person. The concept of *Dasein* was a really important factor in developing the synthesis of *hermeneutic-semiosis*. *Dasein*, and taking an existentialist position to understand the *self* in an experience, bridged Hermeneutics to Semiosis.

The whole of **The Dynamic Sinsign Project's** *Visual Communication* outcomes, were focused on visually interpreting these three participant journey experiences, using *hermeneutic-semiosis*. After every participant's experiential

21 It is within phenomenological research that differentiated aspects of the *self* can be studied individually, but with the knowledge that individually "one existential always calls forth the other aspects (van Manen, 1990, p105), as the *essence* of a lived experience is "grounded in [the *self*'s] existence" (Heidegger, 2013a [1927], p152). These *thematic parts* of a *whole* experience, if identified as constant moments of experience (and can be abstracted and labeled as such), are known as *invariant constituents* (Moustakas, 1994; van Kaam, 1969).

22 But each existential can be temporarily studied in their "differentiated aspects, while realizing that one existential always call forth the other aspects" (van Manen, 1990, p105).

23 Or *lifeworld*, as van Manen prefers to use a Husserlian term when discussing this despite his main methodological arguments in his book are not eidetic.

Fig. 3.18: User B's Moment #8 – "Past the golf course".

moments were visually interpreted, they were then composited into a single storyboard to represent each participant's lived experience. This ended the first turn in a *visual hermeneutic circle* of interpretation.

In addition to the final composite images of each participant's experience, each *Dicent Sinsign* was also annotated to reveal how its Semiosis worked (see Fig. 3.20). These became a set of additional images to demonstrate a hierarchy of annotated information (see Appendix A, pp60-74). As can be seen in Fig. 3.20, the example being used of a *Dicent Sinsign* of a single experiential moment, has been annotated. The whole *Dicent Sinsign* is contained in a square, in which it is communicating a direct experience. The focus of this experiential moment is indicated by the horizontal curly red parenthesis. This signifies the moment's *Object* to be communicated - in this case "Past the golf course." The quality that defines this *Object* of experience is indicated using the red horizontal lines

on the left of the image. The number (2) references that it is the nested second Sign, a *Rhematic Iconic Sinsign*. The context that defines the *Object* of experience is indicated using the blue diagonal line to the right of the image. Its number (3) references it as the nested third Sign, a *Rhematic Indexical Sinsign*.

Successful Application of Philosophy Through Praxis

The results of developing the first turn in a *visual hermeneutic circle* of interpretation were four-fold. Firstly, it created a body of visually experimental images of direct experiences (see Fig. 3.21a). Secondly, it pragmatically explored a phenomenological enquiry into a developing a new methodology, to be used by interaction designers, to understand a lived experience (see Fig. 3.21b). Thirdly, it synthesised a method of theory into practice through *hermeneutic-semiosis* (see Fig. 3.21c). Overall, it took an abstract idea into a successful application of philosophy, through praxis. Through developing this first turn in a *visual hermeneutic circle*, the application in the **VPM** of visual communication techniques within a theoretical framework, identified where further gaps in knowledge remained that needed additional attention within the third practical project.

These gaps in knowledge were raised through uncovering critical incidents in this second practical project (these will be discussed in Chapter 5). The initial visual experiments into developing the **VPM**, laid out in this project, had revealed the strength of montage in creating *Dicent Sinsigns*. The technique of montage was used, as it contains an act of selection of components to ensure successful visual communication. This meant that it was a more amenable technique to use with *hermeneutic-semiosis*. Drawing the *Dicent Sinsigns* instead of montaging was dismissed early on in the project, as drawing and other mark-making techniques, were too much of a raw mediation between the experience and the understanding of what happened in it. Hermeneutically this would be described as *inauthentic*, as any *fore-having* in a designer-interpreter approaching a visual interpretation, would be in constant danger of compromise. The need to create an image, drawn from scratch, would require

Fig. 3.19: Visually Communicating van Manen's Four Existentials of Being.

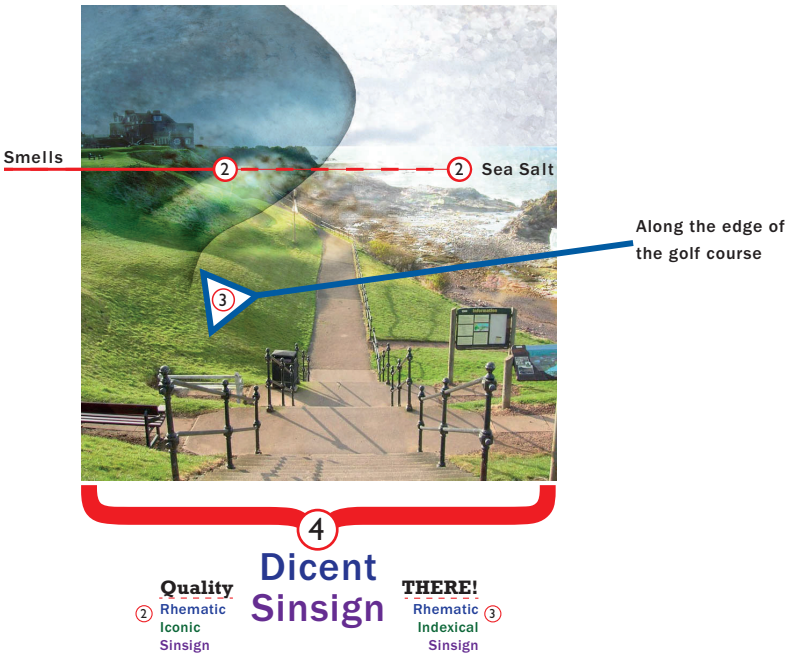


Fig. 3.20: The Dicent Sinsign of User B's Moment #8 – "Past the golf course".

Fig. 3.21: The complete visual communication outcomes for The Dynamic Sinsign Project - (a) Initial diagrams and typographical experiments, (b) Composited experiential storyboards, (c) Experiential moments as Dicent Sinsigns (see also Appendix A).

reference material. To help such a designer-interpreter 'to draw' the visual interpretation, reference material would just needlessly complicate the process of *hermeneutic-semiosis*. It would add an extra step to the process, and would qualitatively bias the research.[24] If reference photographs were needed to draw from, then it would take less time to just use the photographs themselves to create the montage of each *Dicent Sinsign*. As the photographic images already contained the necessary *iconic*, and *indexical* components.

The completion of The Dynamic Sinsign Project ended when the three chosen sensory data records from Task 1 from Internal / External 2010 were visually interpreted up to Step 4. This innovated and tested the application of Dicent Sinsigns in the montaging of visual interpretations of experiential moments. In the next section, this chapter will conclude by outlining how this research was built on and improved. The Circle of Visual Interpretation project, the final project, will outline how the VPM was tested up to Step 7, and the physical form of how it was to be disseminated to interaction designers, particular attention will be given to how the VPM was evaluated through workshopping it with actual interaction designers.

3.3 The Circle of Visual Interpretation – The Third Practical Project

The Circle of Visual Interpretation is this PhD's final practical project and took place between October 2013 to September 2014. The main purpose behind **The Circle of Visual Interpretation** project was to explore and develop the **VPM** to a practical output using a seven-step method in the form of a set of

24 As the VPM began to take shape, the method that each visually interpreted moment would take needed consideration. The author is a retired illustrator, and he saw a conflict between his (ex)illustrator-*self* and his researcher-*self*. If the designer-researcher used the VPM and relied on drawing the visual interpretations, from scratch, without visual reference, would placed the outcome firmly in the imagination of the designer-researcher. Imagination on its own is not conducive to a successful visual interpretation. As an ex-illustrator the author knew that the creative act of drawing an interpretation is biased. A *Dicent Sinsign* is of a direct experience and is *indexical*, in that it semiotically points to the actual event. Therefore close attention to what the sensory data reveals needs to be followed, and any sourced reference images are a more direct connection to the experience than drawing. So montaging the images into a visual interpretation removes the danger of 'illustrating' rather than visually interpreting.

method cards. The **VPM** was workshopped with interaction designers, testing all the practical turns in the **VPM's** *visual hermeneutic circle* from beginning to end. The practical outputs quite clearly demonstrated the contribution *Visual Communication* made to this process. The project's goal set out to test how the **VPM**, using method cards, would give agency[25] to interaction designers for them to visually interpret lived experiences to understand the nuances they need to design for. In doing so, they create for themselves visual stimuli with which they can improve their interaction design ideas.

By awakening the designer's own innate visual skills, through visual interpretation of what was actually saw/felt/done, etc. by users, the agency designers gain is through the "perception and sensation of [designer's] own actions" (McCarthy and Wright, 2004, p85) in cultivating fresh understanding by 'doing.' The visual communication forms of experiential interpretations that the **VPM** outputted essentially became a visual dialectic, between the interaction designer-researcher and their own sensory data user research.

What this means is designer-researchers would use the **VPM** to generate a lot of visual stimuli, through visual communication techniques that reveals the *essence* of the *whole* lived experience they are studying, by defining how each experiential moment is signified visually. The interaction designer-researcher would understand the visual language of the visual interpretations of the studied lived experience, because they themselves had created the visual language they were communicated in. Pragmatically this could be described as emerging from praxis, and as 'through praxis comes the understanding.' This is how *hermeneutic-semiosis* phenomenologically brings forth and semiotically transmits what up to now was hidden using other qualitative means.

To summarise this approach of developing the **VPM** as a comprehensive designer-focused methodology (to understand the designers' own users), it is important to clarify a couple of important points before proceeding with describing the third practical project. In this doctorate's thesis the re-influencing

25 As Richards says, "Qualitative research is agency" (2009, p49), and guided by the *hermeneutic-semiosis*, the VPM aimed to empower agency in designers.

of *Visual Communication* on Interaction Design is made during the interaction designers' ideation phase. By using the **VPM** to visually interpret their own user research, interaction designers create a personal communicational space of self-reflection. Within this communicational space the **VPM** facilitates the designers' own internal dialogue when they visually interpret the sensory data using the seven steps in the methodology. Through the use of method cards (this will be discussed later in more detail), the designers engage within a phenomenological structure of inquiry, which is hermeneutic in structure through employing montage to visualise what the user's saw/felt/did. In the decision making in selecting suitable imagery to represent this, the designer has to rely not on subjective selections, but at each step of visual interpretation, the imagery is semiotically structured through Semiosis. The visual interpretation of experiential moments (as experimented with in 3.2 above) is pragmatically controlled by the triadic semiotic structure of a *Dicent Sinsign* (fourth sign). In this third project the visual interpretation of *invariant themes* of the lived experience (which indicate its general structure) is controlled in much the same way using Semiosis, except it is controlled by the more sophisticated ninth sign, a *Dicent* Symbol. It is with this synthesis between phenomenological interpretation and pragmatic semiotics that *Visual Communication* comes to the fore. From a Frascaran perspective, this results in emergent understanding of the studied lived experience by the designers' own actions using the **VPM**. From this emergent understanding *Visual Communication* is central to the interaction designers' own change in behaviour toward designing possible interaction design solutions. With the act of montaging the sensory data the interaction designers provide their own visual stimuli to designing the best solution to improve the experience for the user.

In **The Circle of Visual Interpretation** project the sensory data that was analysed came from **Internal | External 2010** project's Task 2 of the *Experience Probe*. It was composed of the participants' own reflective emotional collages, augmented by interviews and observations. The third practical

project expanded upon the process of visual interpretation that began in **The Dynamic Sinsign Project**. During the final practical project the **VPM**, and the *hermeneutic-semiosis* that powers it, were developed in response to interaction designers feedback.[26] This section of Chapter 3 will explore how, just as in any form of qualitative research, the designer-researcher collects and analyses data through the method cards, to form a theory that explains what is happening in a lived experience. It will chart how the experiment to develop the **VPM** into a full phenomenological synthesised methodology, with Peircean Semiosis and visual communication techniques, was made. The project's main designed outcome of **The Circle of Visual Interpretation** method cards will be outlined, and improvements and adaptations to the methodology will be discussed. This direct feedback, drawn from workshopping the method cards with interaction designers and how they reacted to the **VPM**, alongside peer reviews provided extremely valuable guidance on how lived experience can be revealed through making visual interpretations.

3.3.1 The Project's Purpose, Goal and Outcome

The main purpose of **The Circle of Visual Interpretation** project was to complete the development of a synthesis of *hermeneutic-semiosis*, which had begun in **The Dynamic Sinsign Project**. Once a completed **VPM** had been developed, it was important to then apply it to a studied lived experience using a delivery method that interaction designers could use. The goal therefore was to test the **VPM** with interaction designers in a controlled environment. The set of designer-friendly method cards that were one of the *Visual Communication* outcomes of this project achieved this goal. These method cards were used to workshop the completed **VPM** with interaction designers (see Fig. 3.22). The first iteration of the method cards were workshopped to 24 designers at INTERACTION 14 in Amsterdam, in February 2014. The second

26 During this project the feedback of interaction designers was crucial, and the method cards went through two iterations. The 1st iteration of the method cards took the sensory data from Task 1 of the *Experience Probe*, but to really develop the VPM fully the second iteration needed to analyse the experience of using the unfamiliar touchscreen in a gallery setting within a time constraint from Task 2. This was because it was, unlike the sensory data from Task 1, a shared experience. Both iterations were workshopped with interaction designers during two international Interaction Design conferences in 2014.

Fig. 3.22: Interaction designers creating visual interpretations during INTERACCIÓN 2014.

iteration of the method cards were workshopped to 12 interaction designers at INTERACCIÓN 2014, in Tenerife, in September 2014. The remainder of this chapter will outline how this was achieved.

3.3.2 The Circle of Visual Interpretation Methodology

In **The Circle of Visual Interpretation** project it was crucial to experiment with developing the new qualitative methodology of the **VPM**. In **The Dynamic Sinsign Project** the rudimentary methodology for visually interpreting experiential moments of a lived experience was established. This utilised the first turn in the **VPM's** *visual hermeneutic circle* of interpretation, by employing visual communication techniques, using *hermeneutic-semiosis* through the medium of a *Dicent Sinsign*, to montage visual interpretations. This can be summarised as:

1st Turn in the Visual Hermeneutic Circle

Step 1: Moments of Experience…
Spotting, abstracting & labelling moments

Step 2: Core experiential moments, visually interpreted

Step 3: A Visual Interpretation…
PART of an experience, visually interpreted

Step 4: One's Experiential Moments…
A visual interpretation of a person's experience

2nd Turn in the Visual Hermeneutic Circle

Step 5: Clustered Common Themes…
Revealing the shared experiential thematic structure

3rd Turn in the Visual Hermeneutic Circle

Step 6: Experiential Structures…
Revealing the structures of experience

4th Turn in the Visual Hermeneutic Circle

Step 7: The Visual Interpretation…
Communicating the composite experience

Communicating the composite experience

It was these four turns that **The Circle of Visual Interpretation** project would address. These seven steps of the **VPM** were translated into a set of method cards, which would be the delivery medium to be used by interaction designers. The method cards structure followed the seven steps of the outlined methodology. The first turn in the *visual hermeneutic circle* took up the first six cards in the pack[27] **The Circle of Visual Interpretation** project needed to develop the three final turns in the *visual hermeneutic circle*. These turns would become Steps 5-7 in the method cards, and would need to reveal more than understanding just individual personal experiences (these cards will be discussed in more detail in the following section). Before the first workshopping of the **VPM**, the theory was first disseminated for peer review[28] to gauge where future issues may lie. In disseminating the theory before workshopping the 1st iteration of the cards, the peer reviews would reveal where different disciplinary biases would arise. The returned peer reviews revealed very interesting debates between the reviewers as to the relevancy of the **VPM**. For some reason a few reviewers were hostile, but there was a consensus between them all that the **VPM** had, "some intriguing and provocative ideas [that] may offer great potential" (DIS4, 2014, see Appendix E). But to explore how this point is reached, it is first important to outline how *Visual Communication*

27 Step 2 needed to be split into three stages of 2a, 2B, and 2c to be user-friendly to designers. This step required the most explanation and so needed the guidance information to be clearly followed. Therefore, the space afforded by three cards was required.

28 This dissemination was in the form of a pictorial paper written as a submission for the Designing Interactive Systems (DIS 2014) conference. This submitted paper explicated the first iteration of the full VPM, and although not accepted for inclusion, the resulting peer review feedback was very informative.

contributed to the creation of the full **VPM**.

The Circle of Visual Interpretation project phenomenologically analysed the sensory data record collected in **Internal | External 2010**. This took the form of timed and annotated video transcripts, the participants' own emotional collages, and researcher interview notes. From this data set information was coded to first reveal moments of individual experience to begin the visual interpretation process. Out of the original eleven participants only nine provided a full set of data, as two participants didn't give interviews ("User J" and "User K"). So users "J" and "K" could not be included in the final analysis. The techniques to achieve successful, phenomenological visual interpretations of the utilised two specific Peircean semiotic Signs (see Appendix C). The *Dicent Sinsign* would continue to be used to visually interpret the experiential moments of the individual participants. But to go deeper into understanding the mechanics of a specific lived experience, where the general experience replaced the individualistic, a higher class of semiotic Sign was employed. In visually interpreting the revealed experiential *themes* of a lived experience (which were *invariant* in nature within the *whole* experience), the ninth Sign was employed. This was a *Dicent* Symbol, and it was useful in visually interpreting the general structure of the lived experience that was revealed.

This final practical PhD project generated the most *Visual Communication* outcomes out of all the three projects. In the next section, these will be outlined to show how the **VPM** analysed the sensory data from **Internal | External 2010**, to understand the revealed *essence* of the studied lived experience.

3.3.3 Visual Communication Outcomes

The *Visual Communication* outputs that were created as a result of using the **VPM** were numerable. The number of outputs that it generated during **The Circle of Visual Interpretation** project, were only indicative of visually interpreting one specific lived experience. Interaction designers using the **VPM** would still follow the same methodology, but the number of outcomes they would produce would be dependent on the variables within the sensory data

collected from their own project's lived experience. On this understanding this section will outline the specific generated outcomes, from visually interpreting the lived experience of using an unfamiliar interactive artefact, in a gallery environment, to reveal an aesthetic experience. Therefore six outcomes will be outlined. The last five outcomes will focus on what the **VPM** was generated by using, while the first will focus on the design iterations of the method cards.

Method Card Iterations

The first *Visual Communication* outcome of **The Circle of Visual Interpretation** project was the design of a set of method cards, to deliver the **VPM** to interaction designers. To minimise the time interaction designers took to apply the **VPM** to their own research during their busy ideation schedule. So the seven-step set of cards was designed for immediate theory-free use. As IDEO (2003) had already successfully implemented their own set of method cards, the format was an established tool familiar to interaction designers. Method cards are designer-friendly, in that they summarise on each card complex methods into small consumable chunks.

As a delivery format, the author had experience in using method cards in both teaching and researching contexts.[29] Through his personal experience using method cards, the author was convinced that the application of cards would be relevant to disseminating the **VPM**. **The Circle of Visual Interpretation** project produced two iterations of method cards. The 1st iteration of the cards was made to test the format and how to best to deliver the **VPM** (see Pack 1). The 2nd iteration corrected any problems revealed from workshopping the 1st iteration with interaction designers (see Pack 2) to test the whole application of the **VPM** on user's sensory data in another workshop. The design of both iterations followed a shared layout, with necessary changes being made between iterations based on feedback. They were double-sided and printed on luxury matt card.

29 While at Glasgow Caledonian University, he used both the method cards of IDEO, and a colleague's own set of method cards from her PhD research, with his own students during a *Design and the User module*.

As the seven steps of the methodology make ever decreasing interpretive turns through a *visual hermeneutic circle*, visual communication techniques were employed to subtly visually reinforce this to the user. The main image on the case, and the front of the cards, semiotically signified the underlying *visual hermeneutic circle* using an *iconic* image. A stock image of overlapping circles was chosen from an online image library. In this image, a colour gradient crossed diagonally through the image. Over this image a variant of the circle diagram was laid (see Fig. 3.12). This was to suggest that there was a journey to follow within the pack of method cards. To reinforce this movement through the **VPM** (and its underlying *visual hermeneutic circle*), each of the seven steps was indicated by applying a specific colour range to a card. This colour was sampled from the relevant circle in the image used on the card reverse. The order of colours was dictated by the order they appeared in the gradated spectrum of this *iconic* image (see Fig. 3.23).

On the reverse of the cards this concentric circle overlay was re-used on each card as black outlines. As each card was one step[30] of the **VPM** one of these concentric circles was removed to indicate movement through the *hermeneutic circle*. Each card was also clearly numbered from 1-7. Together the text and images worked to visually communicate each stage of the **VPM** to the user. This visual language created a coherent user experience through which each step of the **VPM** was explained.

Dicent Sinsigns - Visual Interpretations of Individual Experiential Moments

During steps 2-4, the **VPM** would generate visual interpretations of an individual's experiential moments, of using an unfamiliar touchscreen

30 Step 2 took three cards to explain the step. Therefore steps 2A, 2B and 2C each shared a similar colour palette, but across all three cards there was a subtle gradation within this palette.

artefact in a gallery environment, which was the first interpretive turn in the *visual hermeneutic circle*. These montaged visual interpretations were the next considerable *Visual Communication* outcome, visually communicated through a *Dicent Sinsign*. In the course of the application of the cards to the sensory data from Task 2 of **Internal | External 2010**, 120 separate *Dicent Sinsigns* were montaged (see Fig. 3.24). As there were nine participants, nine individual sets of sensory data were visually interpreted during steps 2 - 3. Out of the 120 visual interpretations, the **VPM** on average revealed experiential moments per participant.

Sequential Thematic Storyboards of Individual Experiential Moments

The third major *Visual Communication* outcome from this final project, came in the form of sequential thematic storyboards. At Step 4 of the **VPM**, from the 120 visual interpretations made of individual experiential moments, nine sets of storyboards were compiled (see also Fig. 3.24). These visually communicated how the experience was, for each individual, of using an non-familiar interactive artefact in a gallery environment. Each sequential thematic storyboard visually interpreted the *essence* of each individual's experience. In doing so the storyboards could be studied (in analysing using an unfamiliar touchscreen artefact in a gallery environment,) to see if an *aesthetic experience* took place. By engaging in visually interpreting each individual's experiential moments, using *Dicent Sinsigns*, Step 4 generates the imagery to compare each individual's experiences. By engaging in this the designer-interpreter becomes pragmatically involved in the phenomenological understanding of what generally happens during a lived experience.

By creating and comparing the sequential thematic storyboarded experiences, *invariant* experiential moments that suggest general behaviour are easier to locate. This is because the same visual language (which was created by the designer-interpreter using the **VPM**), is common only used throughout steps 2-3. Therefore, in examining the sequential thematic storyboards in

Fig. 3.23: The full set of cards showing the use of colour and image to reinforce the movement through a visual hermeneutic circle [1st iteration].

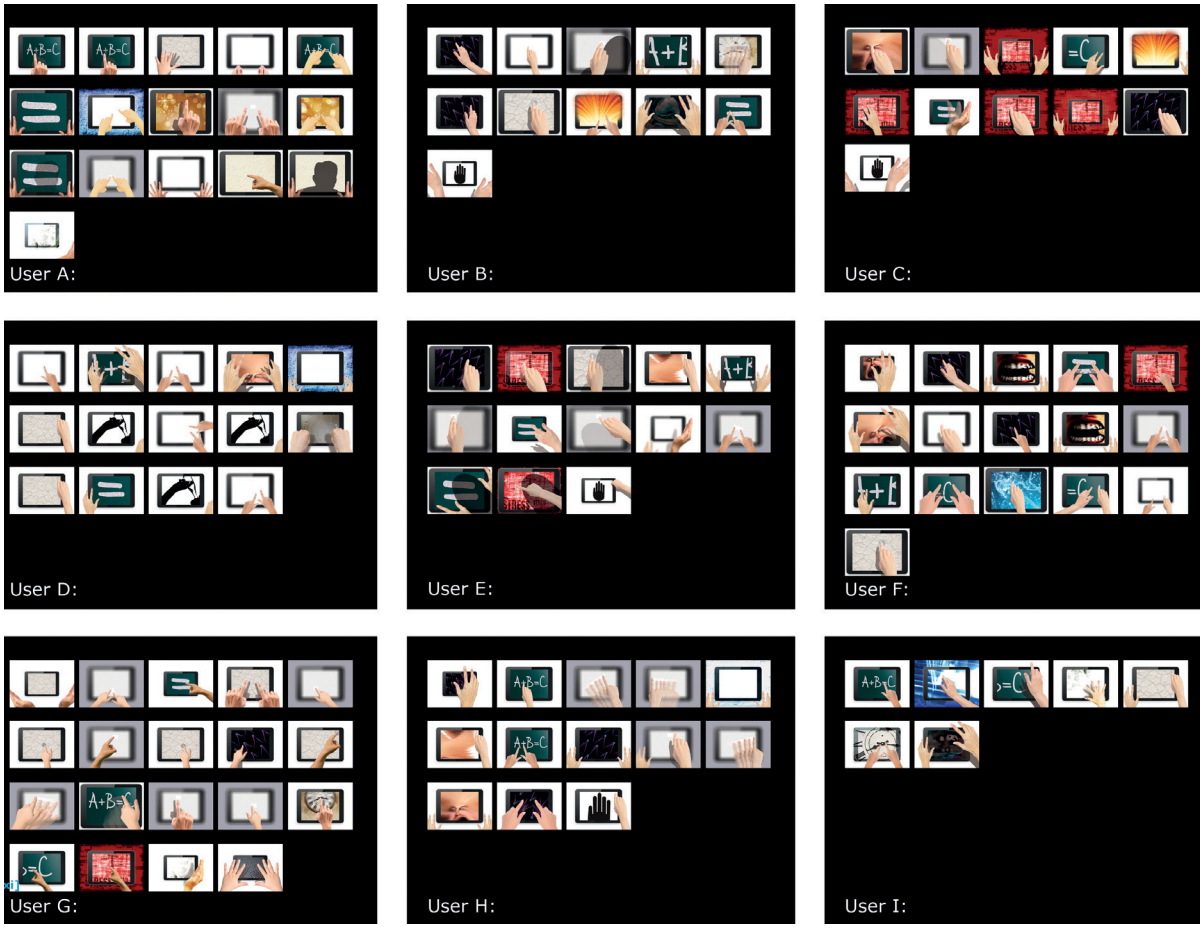


Fig. 3.24: Nine sets of sequential thematic storyboards of the individuals' own experience of using an unfamiliar touchscreen artefact within a gallery environment. These include 120 separate Dicent Sinsign montages of individual experiential moments.

Fig. 3.24 it is clearer to see any behavioural change that happens. By comparing all the sequential thematic storyboards of each individual at once the lived experience can be seen as a comparative *whole*, and those general moments that happened to more than a single individual can be identified quite easily.[31] Those shared moments are therefore *invariant*, and indicative of more general *themes* of such a lived experience. The *invariant* nature of these moments are immediately apparent when visually communicated to the interaction designer, in the visual stimuli they have created for themselves. This immediate visual 'hit' of common *themes* could not happen as instantaneous as this, by simply reading textual sources.

Dicent Symbols - Visual Interpretations of Clustered Experiential Themes

The next substantial *Visual Communication* outcomes came from steps 5-6 of the **VPM**. These came from the two further interpretive turns of the *visual hermeneutic circle*. To understand the *essence* of a specific experience, it was important to move from understanding the individual experience, to the general structure of what was experienced. During the third interpretive turn, the nine sequential thematic storyboards had revealed 12 possible *invariant themes* (see Fig. 3.25b-m). Those shared moments were clustered into *themes*. These clustered moments were then visually interpreted into one new image, this time using *Dicent Symbols* (see Fig. 3.25n) to semiotically communicate the general structural *themes* of the studied lived experience (see Fig. 3.25a).

For interaction designers using the **VPM** to understand the general structure of a lived experience, is semiotically represented through the visual language that the designer-interpreters uses in creating the *Dicent Symbols*. The clustered *themed* visual interpretations are formed at a *symbolic* level from the strongest elements from this visual language. To make a representation of each theme a legisign is used to structure a *dicent* proposition. This has a socio-cultural meaning that the designer-interpreter agrees, signifying 'this means

31 These may be at different points in each storyboard, but at such an early stage the focus is on discovering invariant experiential moments.

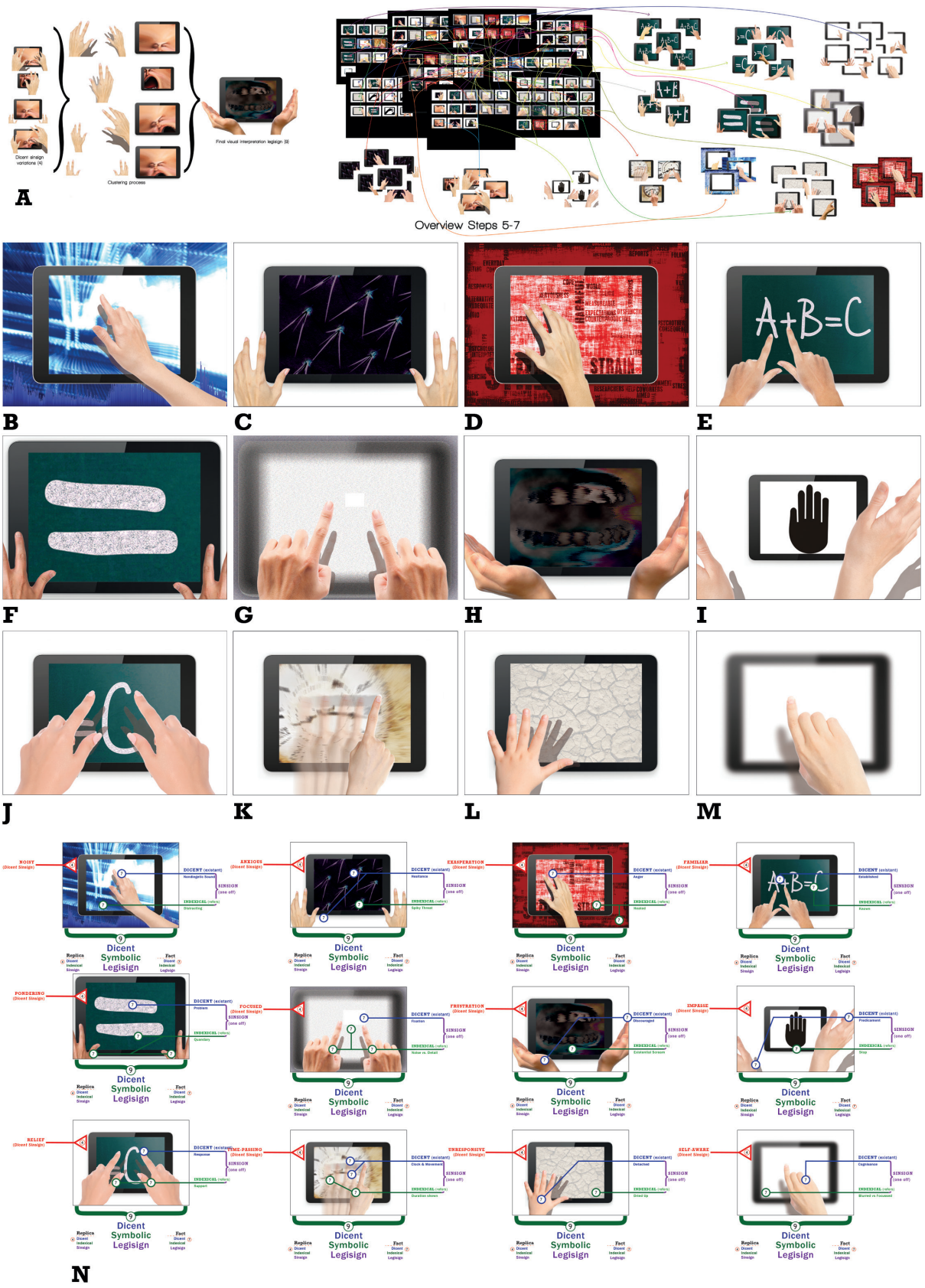


Fig. 3.25: 12 Dicent Symbols of general invariant themes clustered from the previous 120 Dicent Sinsigns - Themes (a) clustering, (b) noise, (c) anxious, (d) exasperation, (e) familiar, (f) pondering, (g) focused, (h) frustration, (i) impasse, (j) relief, (k) time passing, (l) unresponsive, (m) self-aware, (n) Dicent Symbol structures.

this, and that means that.' In the context of **The Circle of Visual Interpretation** project, this 'socio-culturally agreed meaning' was set by the author. When other interaction designers used the **VPM** on their own user research they would agree their own set meanings, as part of their ideation phase.

Final Visual Interpretation

The next *Visual Communication* outcome was generated during Step 7 (see Fig. 3.26), through the final turn of the **VPM's** *visual hermeneutic circle*. The application of the **VPM** to collected sensory data to reveal the general *essence* of a single lived experience, of using an unfamiliar touchscreen artefact in a gallery environment, focused on visually understanding what happened. This emphasis on the visual is important. To the interaction designer these are what forms their visual stimuli, to help enhance empathy and understanding of their potential users. As the interaction designers engage with the visual interpretations, they themselves phenomenologically reveal the experiential *essence* and meanings behind user behaviour. Step 7 of the **VPM**, all this understanding coalesced into a single *Visual Communication* outcome that creates a communicational situation. Like in the earlier sequential thematic storyboards of Step 4, the final image that is created by the **VPM** places the general *invariant* experiential *themes*, created from Step 6, into a single, final sequence. This image presents a beginning, a middle, and an end to the general lived experience being investigated demonstrating what was generally experienced it visually interprets. When the participants began the specific interaction, when they continued the interaction, and what generally motivated them to stop interacting within the specific lived experience. The specific *Visual Communication* outcome created by applying Step 7 to the sensory data, was a generalised visual interpretation of the lived experience. Twelve clustered *invariant themes* (which the **VPM** revealed in Steps 5 and 6), were ordered to show the general structure of the lived experience. Within the three areas of beginning the interaction, its middle period of interaction, and then its eventual culmination, the ordering of the *themes* was suggested

Fig. 3.26: Final visual interpretation showing the general essence of the experience the individuals encountered as a general symbolic image.

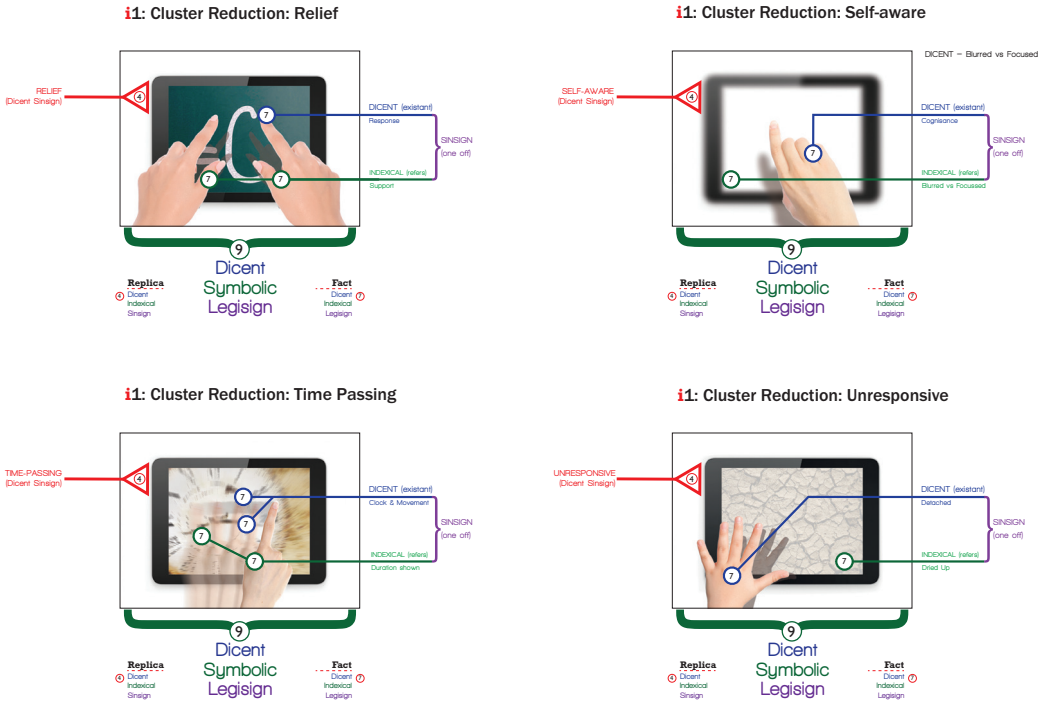


Fig. 3.27: Examples of Annotated Dicent Symbols.

by the frequency of each theme, in reference to the general lived experience discovered from the sensory data.

In the context of the general 'beginning' period, it featured those experiential *themes* that communicated up to the point, when 'users'[32] began to physically engage with the touchscreen's software. The general 'end' period was termed in the final storyboard as 'ending.' This was deemed to be a better reflection of the behaviour behind a users winding down from a period of interactivity, and was represented by those *themes*, which communicated up to the point when they began to interactively disengage. There was also a general 'middle' period of interaction, interpreted from the most common behavioural thematic changes from the sensory data. This period was renamed 'engaging' instead of 'middle,' as it reflected an act of interaction that took place much more satisfactorily. These sets of *Dicent Symbols* of *invariant themes* signified those general behavioural encounters, which were identified from re-examining the sensory data. They were placed in a controlled order that represented the lived experience as generally experienced. As will be discussed in the next chapter, the results of these decisions during workshopping with interaction designers, were very positive to the answering of this PhD's research question.

Semiosis - Annotated Dicent Symbol Diagrams

The final *Visual Communication* outcome created in this project was an augmentation to the main outputs. In **The Dynamic Sinsign Project**, annotated *Dicent Sinsigns* were created[33] to explain how the Semiosis worked in visually interpreting individual experiential moments, during the 1st turn of the **VPM's** *visual hermeneutic circle*. Now that the visual interpretations were at a more general experiential structural level, the focus of the *hermeneutic-semiosis* moved onto a higher semiotic level. The application of *Dicent Symbols* to structure the visual interpretations meant that the Semiosis was now

32 The change from participants of the research project to the more generic 'users' at this point is intentional.

33 This was a technique used in *The Dynamic Sinsign Project* to explain the Semiosis behind the visual interpretation of the sensory data from Task 1. By creating this extra set of diagrams (see Appendix A, pp88-93), which totalled 19 visually interpreted moments in total, they could be used as extra visual aids to explain to interaction designers how the visual interpretations are constructed. An example of this act of dissemination, one of these images was used within a presentation to the workshop attendees at INTERACCIÓN 2014.

working at a *symbolic* level. Unlike *Dicent Sinsigns* being perfect to semiotically structure visual interpretations of direct experiences, the nature of clustered *invariant* experiential *themes* needed to be visually communicated in a different way. That is why *Dicent Symbols* (the ninth Sign) were now being used, and in the final *Visual Communication* outcome of **The Circle of Visual Interpretation** project, how *Dicent Symbols* worked were clearly explained. The set of 12 *Dicent Symbols* created at Step 6 were placed into a new annotated layout (see Fig. 3.27), which explained how each *Dicent Symbol* visually communicated a single *invariant* experiential *theme*.

These Visual Communication outcomes amounted to hundreds of individual images, constructed either as Dicent Sinsigns or Dicent Symbols, by employing hermeneutic-semiosis. The completion of all three practical project took the VPM through four turns of the visual hermeneutic circle that is its theoretical engine. By analysing the sensory data from Task 2 of Internal / External 2010 up to Step 7, the hermeneutic-semiosis that powers the VPM was truly tested. This was done first in isolation as part of the project work, and then during the workshops. The physical form of the method cards changed with the feedback from interaction designers, and the hermeneutic-semiosis was tuned through early peer review feedback. Chapter 4 will outline the empirical data that this resulted in, before being then discussed in Chapter 5.

Chapter 4: The Projects' Results

In order to make a case for Visual Communication to have a fresh influence over Interaction Design through the VPM, it is first crucial to now reflect on what resulted from the three practical projects. Chapter 4 therefore will reflect on the effectiveness of the design of the projects, the results they produced, and how visual communication techniques were central to each project's outcomes. So the focus of this chapter will be on the successes of Internal / External 2010, The Dynamic Sinsign Project and The Circle of Visual Interpretation projects. The following sections will show how these results also help Visual Communication reposition itself as a fresh influence, by examining the results from the perspective of the interaction designers.

4.1: Reflection on the First Practical Project's Results

The **Internal | External 2010** research project was designed to simulate a research inquiry into a lived experience, which interaction designers would use to understand an interactive experience that they would need to design for. The project's purpose therefore was to develop a way to collect sensory data that interaction designers could use, by adapting existing qualitative methods and tools[1] in a phenomenological way. So this first project's results were in the form of raw sensory data that the *Experience Probe*, interviews and observation generated. These tools where identified in Creswell (2003, & 2007) and Richards (2009) before being adapted phenomenologically into the **VPM**'s

1 The most appropriate research tools to adapt were the semi-structured interview (Barriball & While, 1994; Creswell, 2003, 2007; Marshall and Rossman, 1999), observation (Jääskö & Mattelmäki, 2003, p130; Stanton, 1999, p20; Creswell, 2003, 2007; Marshall and Rossman, 1999) using an adapted video ethnography (Brun-Cottan, 1999, p18), and probes (Gaver *et al.*, 2004; Mattelmäki, 2006).

toolset.[2] The collected sensory data from these tools would later be analysed in **The Dynamic Sinsign Project** and **The Circle of Visual Interpretation** project using the **VPM**.

In developing the adapted tools to be used by interaction designers, visual communication techniques were utilised to support the phenomenological approach. This continued the tradition of *Visual Communication* moving freely across boundaries (Poynor, 2004, p27), and it was influential in creating the *Experience Probe*, the recruiting *Aesthetic Volunteer* Meetup website,[3] the recruitment briefing materials, and the presentation slides.[4] By employing standard visual communication techniques of hierarchy, layout, typography, and legibility, it aided the interaction designers in reducing any possibility of them biasing the collection of the sensory data, to engage the participants with the research into their lived experiences. *Visual Communication* successfully facilitated each participant to generate sufficient sensory data with minimum of interaction designer guidance.

This resulted in providing the interaction designer with a rich set of written, videoed and visual sensory data to later visually interpret. These participant-generated responses demonstrated each individual's cognitive, behavioural and emotional phenomenological states while engaged in the lived experience. The performance of the tools took its design beyond the mere '*aesthetics of surface*' of communicating "the message" of what to do and when, into the "source" material within each participant (Frascara, 2004, p73) as to what they saw/felt/did during their own lived experience. *Visual*

2 As these sources only gave non-phenomenological applications for their use, this first project resulted in new phenomenological variations of these methods and tools *being* developed. Qualitative research is about agency (Richards, 2009, p49), and the interactive opportunities and possibilities of each designed tool used in Internal | External 2010 provided a phenomenological degree of agency to the interaction designer using the VPM.

3 Internal | External 2010's recruitment strategy gave a healthy sample of volunteer participants from the briefing sessions. The *Aesthetic Volunteer* Meetup website utilising the Meetup social network platform aided this. The website was branded under the name of *Aesthetic Volunteers* that made the volunteers feel that they were part of something worthwhile. With a minimum amount of stress, people could be recruited to volunteer via this website, through using specifically targeted keywords. The keywords used to attract volunteers were: Volunteer Opportunities, Volunteer, People Helping People, Philanthropy, Fun Times, Nonprofit, New In Town, Volunteering, Aesthetics, Interaction Design, User Experience, Galleries, *Visual Communication*, Design Research, Doctoral Researcher. Ethically, everyone who joined as members of this *Aesthetic Volunteers* group were made very aware of the nature of the call for participants. Those who joined *Aesthetic Volunteers* were not committing to doing anything, they were only demonstrating an interest in the possibility of becoming participants. The final 13 participants of Internal | External 2010 only were recruited after they had attended a briefing session at Edinburgh College of Art. This was advertised via the *Aesthetic Volunteers* group website, and they had to make an informed decision to take part. This proved a successful way to ethically recruit a good cross-section of participants.

4 The initial briefings held at Edinburgh College of Art in 2010 gave just enough information for some *Aesthetic Volunteers* to agree to take part, and feel comfortable in signing the agreement letter. The *Experience Probe*s were distributed at these events, to those who signed up as participants.

Communication maintained the participants' engagement in the research project, so that the interaction designer could unobtrusively collect this sensory data for later analysis.

4.1.1 Sensory Data: Task 1 Returns

The first sensory data the interaction designer-interpreter[5] collected came from Task 1 of the *Experience Probe*. This was a set of postcards that provoked responses from the participants, to calibrate their own ability to recognise and to reflect upon previous lived experiences. These lived experiences had to have a definable beginning and ending. These responses where annotated onto the reverse of the four postcards and returned at the first interview. In this returned form the informative value of this information was unlocked at the first interview, where the postcards acted as an *aide-mémoire* to each participant to expand verbally on their experiences. This verbal reflection was recorded in both mp3 and written formats (see also Appendix A, pp10-13), adding to the sensory data from which three mp3s were chosen to be transcribed for **The Dynamic Sinsign Project** (see Fig. 4.1) to use in pioneering the development of the **VPM**'s 1st turn of a *visual hermeneutic circle*. The results of this initial calibrating task proved a popular ice-breaker with the participants, which opened them up for the main data collection phase.

4.1.2 Sensory Data: Observation & Video Transcripts

The main sensory data collection in the **Internal | External 2010** research project began with a replicated lived experience that interaction designers would need to understand. Participants' were discretely observed and videoed, to identify areas of behavioural problems that interaction designers may need understand, in order to design solutions. The observations took place over two days at University of Edinburgh's *Inspace Gallery* in November 2010. From the analysis of the video footage, interaction designers could identify moments

5 In this project the interaction designer-interpreter was also the author.

of interest within each participant's experience. These moments indicated changes in participant behaviour that may signify possible points of hesitation, anxiety, distraction, immersion, etc. Screenshots were taken and then placed into visual transcripts (see Fig. 4.2 and available in more detail in Appendix A, pp15-34) of the videoed observation for later discussion at the second interview. These video transcripts were then re-presented to each participant to reflect on, prompting reflections of what they saw / felt / did during the lived experience. The video transcripts were only a small record of what happened, which recorded a phenomenological perspective that van Manen calls an "immediate, pre-reflective consciousness" (1990 p9) of the lived experience. Dilthey saw this as a temporal flow of an individual's consciousness that "has a beginning and an ending" (Bruner, 1986, p6). The video transcripts visually communicated moments when behavioural changes happened, supported by each written testimony from interview notes, and the emotional collages from Task 2 of the *Experience Probe*. For this sensory data to be "transformed into an expression" (*ibid*.) of what happened, interaction designer-interpreters would use Step 1 of the **VPM** to visually interpret these experiential moments.

4.1.3 Sensory Data: Task 2 - Emotional Collages

The emotional collages that the *Experience Probe*'s Task 2 generated provided the interaction designer with an additional level of visually documented sensory data (see Fig. 4.3). Emotional collages provide (in an immediate way) each participants' own emotional response to the videoed lived experience, of what they saw / felt / did from their own point of view. On the photograph of the touchscreen in Task 2 using the white labels, the participants wrote on the labels their immediate reflections on the lived experience. By placing each label somewhere on the touchscreen image they symbolically signified their emotions of engaging in the experience, visual communicating this at an immediate level. As the second interview would come much later in the collection of sensory data, the immediacy of reflection that these emotional collages provided was

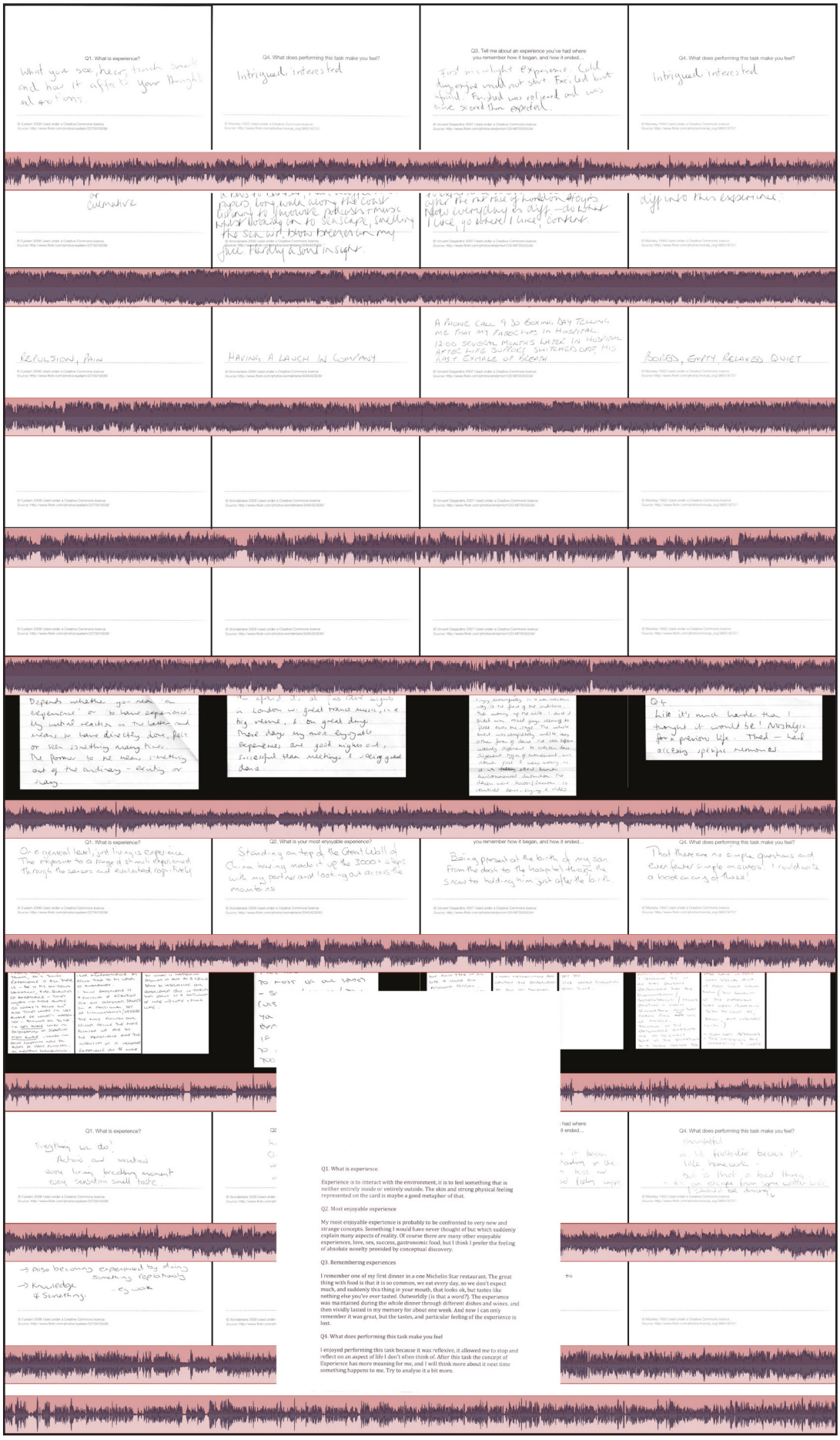
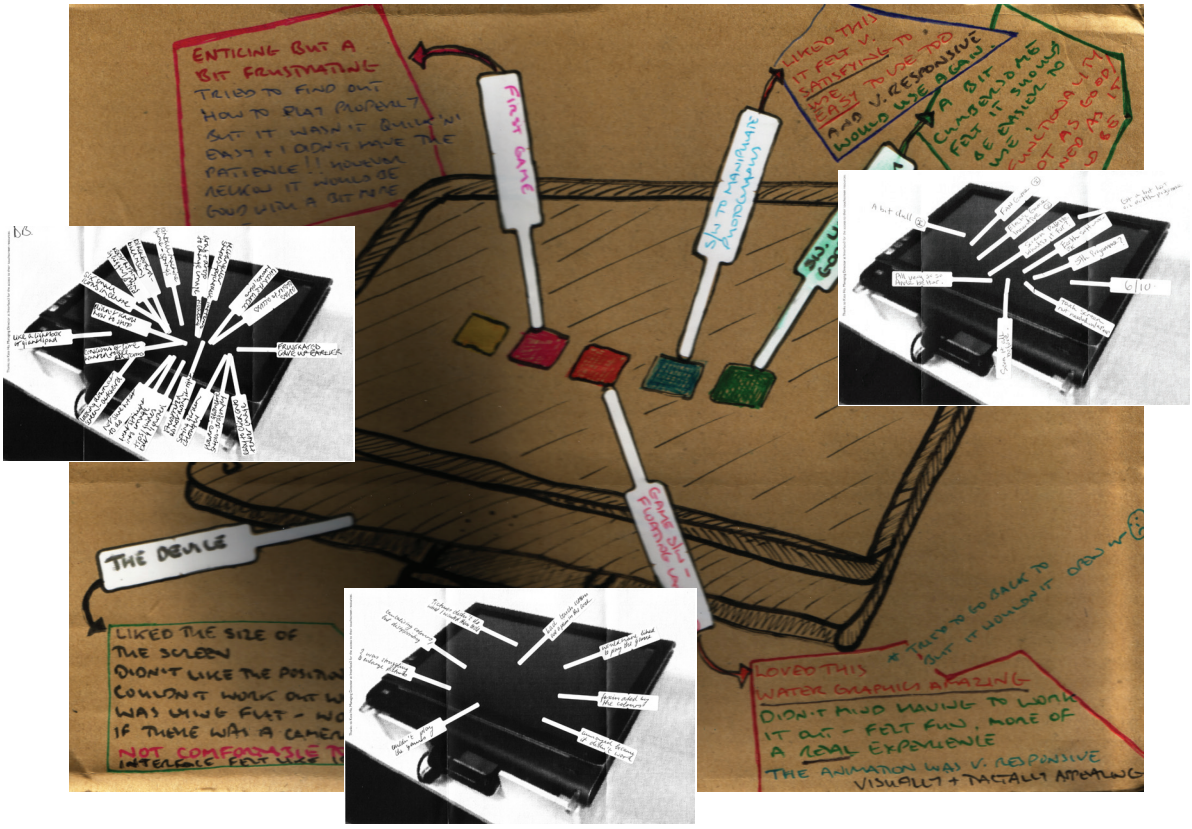


Fig. 4.1 Returned results for Task 1 from the Experience Probe and transcribed mp3s from the first interview.

Fig. 4.2 Some examples of the video transcripts that the Internal | External 2010 observations generated.



4.3 Emotional collages from the *Experience Probe*'s Task 2

important to by the interaction designer, as the emotional collages recorded the participants' initial thoughts on what they had just experienced during the observation. After this, the interaction designer-interpreter would use the emotional collages, like the video transcripts, to qualitatively code the data to identify the experiential moments in Step 1 of the **VPM**.

4.1.4 The Internal | External 2010 Project Summary

The **Internal | External 2010** project generated a lot of rich sensory data from the range of phenomenologically-adapted tools, utilising visual communication techniques that were designed to be used by interaction designers before applying the **VPM**. The quality of this collected sensory data came from the performance of the *Experience Probe*, the videoed observations, and semi-structured interviews. This sensory data (which would be used in the second and third practical projects) came in several rich forms. The *Experience Probe* was employed to good effect both before and after the observations.

Task 1 of the *probe* calibrated the participants to identify experiences so that they could then relate an actual experience. The second project's experiments (see section 4.2) took this sensory data to test how the **VPM**'s visual interpretations could be made. Task 2's user-generated emotional collages on their individual lived experiences were useful to augment what interaction designers had observed. They collages were used at the post-observation interviews, to enrich the collected sensory data. The video footage from each participant's lived experience, was edited into a visual transcript that helped interaction designers to identify key 'moments' of behavioural change to discuss at interview, where it was presented back to each participant to prompt additional reflections upon their lived experience. It was this collection of sensory data that would be used in the final practical project (see section 4.3).

The sensory data from Internal / External 2010 was collected using a variety of visual communication techniques. To avoid any bias of this sensory data the participants only needed to ethically know that they would be observed, using an interactive artefact of some kind, in a gallery environment. The interaction designer collected this sensory data in as unobtrusive way as possible, facilitated by Visual Communication design. This sensory data would only be interpreted within the final two practical projects. The Internal / External 2010 project was only a replication of a research project analysing whether an aesthetic experience could only be identified. The second practical project would begin to develop the VPM, and in doing so, this aim of Internal | External 2010 would help test the interpretive turns of a visual hermeneutic circle.

4.2: Reflection on the Second Practical Project

The Dynamic Sinsign Project[6] was developed to create the **VPM** as a practical methodology to be used by interaction designers. The methodology was designed to visually interpret a lived experience (in this case from the **Internal | External 2010** project), and this project began that process by focussing on how the 1st turn in the *visual hermeneutic circle* would be performed by the interaction designer through using *Dicent Sinsign*s. **The Dynamic Sinsign Project's** goal was to appraise a practical way of using *Dicent Sinsign*s, to aid the interaction designer's visual interpretations of a direct experience from qualitatively coded[7] sensory data. In this section, the results of this second project will be discussed.

Firstly, Step 1 of the **VPM** generated qualitatively coded[8] sensory data, taken from the three strongest testimonies from Task 1 of the *Experience Probe*. Then the practical results of the first visual interpretations using *hermeneutic-semiosis* will be outlined. Finally, the thematic sequential storyboards (which collated the *Dicent Sinsign*s together into a chronological order) will be addressed. **The Dynamic Sinsign Project** was more self-contained than the first practical project, as it focused on developing the **VPM** from the collected sensory data, so there was no need to recruit any more participants to take part. The following subsections will approach the results of the second project from the perspective of the interaction designer-interpreter who would use the **VPM**.

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6 The title of The Dynamic Sinsign Project originally arose out of a misreading of the Peircean term *Dicent* with the term *Dynamic*, from my handwritten notes made from Jappy (2013). This issue meant that for a while Peirce's fourth Sign was *being* referenced as a Dynamic Sinsign, which, technically, is meaningless. This error didn't actually affect the actual development of the VPM utilising a *Dicent Sinsign*. But it did mean that a large number of early diagrams, showing visual interpretations of each experiential moment, had to be corrected. Although factually incorrect in describing the fourth Sign, The Dynamic Sinsign Project remained an exciting and mysterious title to call the second practical project. The title suggested a *dynamic*, hands-on approach to visually interpreting a lived experience using *hermeneutic-semiosis*. On that basis there was no need to correct the error from the title.

7 Clearly the use of the term coding here has no relevance to writing computer language. It is a qualitative technique that is a first step to opening up data. Qualitative researchers use coding to get past the raw data to categories that begin to illuminate the relevance within the data records.

8 Richards (2009) provided, in her book Handling Qualitative Data details three forms of qualitatively coding sensory data. Descriptive coding describes the case being established from the research question in the data. It is mainly concerned with storing this information in table form as attributes, which may be useful for further analysis. Topic coding is a labelling of the text in the data according to established subjects. It involves little interpretation as it dominates early in a project. It requires very little actual understanding of the implications at that early stage. It allocates passages of text to topics that have been deemed relevant to the research question. Analytical coding is based upon interpretation and reflection on the meaning behind the data.

4.2.1 The Coding of the Experiential Moments

To begin visually interpreting any experience the interaction designer needs to have each experiential moment identified. Step 1 in the **VPM**, uses the topic coding form of qualitative coding,[9] to identify each experiential moment in the sensory data from its *Object*, its quality and a context that defines it. These three indicators were the DNA that identified each experiential moment (see Fig. 4.4), as they phenomenologically mapped to the Semiosis of a *Dicent Sinsign* quite seamlessly. From the three chosen testimonies chosen as a pilot study, the topic coding revealed an average of 14 experiential moments per participant. This topic coding process provided the interaction designer-interpreter with the raw experience of what was saw/felt/done during a moment in a lived experience. It can be thought of as seeking 'keyword' terms to describe an experiential moment's *Object* (i.e. anxious), quality (i.e. fear) and context (i.e. THERE!) to make it easier to image search for source photographs to montage into a *Dicent Sinsign*. With this prep work during Step 1 of the **VPM**, the interaction designer makes the montaging of visual interpretations in Step 2 much easier to perform. The topic coding of the sensory data identifies the DNA of an experiential moment, which then helps the interaction designer-interpreter to find photographs to help represent the DNA in a *Dicent Sinsign*. These photographs of *Object*s, qualities and contexts are added to an 'image bank' and saved to a hard drive folder to act as the designer-interpreter's own visual resource while montaging (see Fig 4.5).

4.2.2 Visual Interpretations of Individual Experiential Moments

The main thrust of this second project was utilising *Dicent Sinsign*s for the first time during steps 2-3 of the **VPM**, to structure the interaction designer's visual interpretations of individual experiential moments. Using a pilot study of three transcribed testimonies from Task 1 (that shared a common subject of travel), the participants' experiences that had the **VPM** applied to them were:

9 Moustakas' eidetic adaptation of the van Kaam methodology merely used the established form of topic coding rather than innovating it.

Fig. 4.4: DNA of an experiential moment.

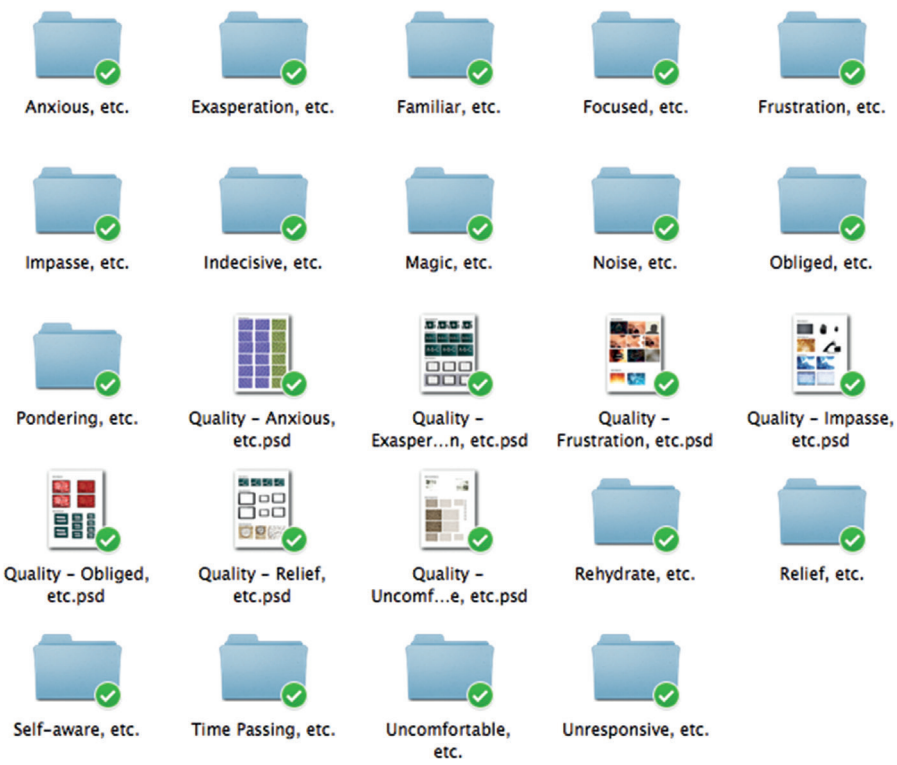

Fig. 4.5: Image bank resource used in the second project.

'User B' and their Dunbar Day Trip;

'User G' and their climb of the Great Wall of China;

'User I' and their Haunted House Ride.

They were all journeys that had a definable beginning, middle and ending, and by analysing these with the new **VPM**, a lot of *Visual Communication* outcomes were generated. In doing so, a suitable visual language was also developed (through the use of metaphor, synecdoche, antonyms, and similes), which was employed to aid the visual communication of what was encountered at each moment. To represent 'User B's lived experience, 15 *Dicent Sinsign*s were used to visually interpret those important experiential moments, which defined that individual's testimony of a "Dunbar Day Trip"(see Fig. 4.6). While 'User G's "climb of the Great Wall of China," and 'User I's "Haunted House Ride" both only used 13 *Dicent Sinsign*s each (see Figs. 4.7 and 4.8), they also shared some of the same visual language employed in 'User B's visual interpretations. In each set of visual interpretations the interaction designer could see and feel what was done through montaging an image to represent each moment's *Object*, the experiential quality felt in the moment, and the context in which it happened. As the interaction designer constructs each *Dicent Sinsign* they can begin to see whether participant is actually stressed or calm, comfortable or anxious, alone or acting as in a group.

These visual experiments successfully proved that the interpretive process of a 1st turn in the *visual hermeneutic circle* was possible, by employing *Dicent Sinsign*s to structure the visual interpretations. They worked fairly seamlessly with the experiential moment DNA that was revealed by topic coding the sensory data. One positive result was that a visual language (that the interaction designer-interpreter would use across all the individual testimonies while visually interpreting) began to emerge from the visual interpretations. One example of this shared visual language was the re-use of the same *iconic* clock face to indicate the passing of time (see Fig. 4.9) across all the three testimonies. Step 2 of the **VPM** immersed the interaction designer-interpreter into a

Fig. 4.6: Visual interpretations using *Dicent Sinsigns*, of 15 individual experiential moments, within a day trip to Dunbar.

Fig. 4.7: Visual interpretations using *Dicent Sinsigns*, of 13 individual experiential moments, of a climb up the Great Wall of China.

Fig. 4.8: Visual interpretations using Dicent Sinsigns, of 13 individual experiential moments, of a ride on a ghost train.

phenomenological process of revealing the behaviour and motivations of what participants saw/felt/did in a lived experience. One-by-one the designer-interpreter visually interpreted each individual's experiential moment through a pragmatic act of praxis. The designer created for himself[10] an "Immersive Experience" (Moore, 1999, p12) that was his very own communicational situation in which to use Step 2 of the **VPM**, to understand for himself what was happening during each individual experiential moment. Then using Step 3 the designer processes each individual's visual interpretations into a thematic sequential storyboard, one for each individual's lived experience. It was at this step of the **VPM** that **The Dynamic Sinsign Project** completed its experimentation with using *Dicent Sinsign*s in the 1st turn of the *visual hermeneutic circle*.

4.2.3 The Thematic Sequential Storyboards

The thematic sequential storyboards that the interaction designer composes in Step 3 of the **VPM** (from the individual visual interpretations that were interpreted at Step 2), are an important phenomenological step to move the examination from the *parts* of a lived experience to the *whole* experience. On its own the *Dicent Sinsign*'s visual interpretations simply exist as fragmentary representations that communicate single *parts* of a bigger lived experience - and only from one perspective. Therefore, to begin to understand the *essence* of a *whole* lived experience, Step 3 ensures that the interaction designer-interpreter collates each individual's experiential moments chronologically into a thematic sequential storyboard, one for each individual, for a moment of comparison to identify the *invariant* moments shared between them. In this way, it is possible for the designer-interpreter to visually 'see' both individual's lived experience from beginning to end, and to begin to identify the important shared *invariant* moments. As the aim of **The Dynamic Sinsign**

10 At this point onwards, the use of the pronouns 'he,' and 'himself' when discussing what an interaction designer who is using the VPM on sensory data, becomes more common. Obviously an interaction designer can be of any gender. The use of 'he/himself' instead of 'she/herself' reflects the fact that in this case THE interaction designer being referred to was THE author of this PhD, and as his gender is known the masculine third-person pronoun is used.

Fig. 4.9: The development of a shared visual language within the visual interpretations.

Project was only to begin to develop the **VPM** up to the 1st turn within the *visual hermeneutic circle*, this meant that Step 3 was as far as the project could go. The three thematic sequential storyboards, which were successfully created from the three testimonies (see Fig. 4.6, 4.7, and 4.8), were not of the same lived experience. Therefore, at this stage of developing the **VPM** no direct comparison between them could be made (this would be the focus of the final practical project). Notwithstanding this, the raw sensory data created in **The Dynamic Sinsign Project** in the form of montaged *Dicent Sinsign* visual interpretations, did indicate that a deeper understanding of a lived experience was possible at an individual level. Through the interaction designer's immersive engagement in visually interpreting, when he examines each thematic sequential storyboard he can see each individual's emotional engagements and/or disengagements in a visual language of the designer-interpreter's own creation. In doing so, the interaction designer-interpreter presents to himself a richer narrative created by his own design skills, of what

the participants saw/felt/did during the lived experience. This demonstrates a potential for the **VPM** to help the interaction designer to go much deeper than superficial user testimonies, which describe at the level of "I did this, and then I did that" could. This would be built on in **The Circle of Visual Interpretation** project.

4.2.4 The Dynamic Sinsign Project Summary

The Dynamic Sinsign Project was the first real opportunity to place *Visual Communication* firmly at the centre of a research project to help Interaction designers to understand the *essence* of a lived experience. The interaction designer-interpreter in engaging in the first three steps of the **VPM**, had coded sensory data (collected in **Internal | External 2010**) to reveal the DNA of the individual experiential moments. This DNA of *Object*/quality/context defined the phenomenological *parts* of an individual's *whole* lived experience. Then the designer-interpreter utilised *Dicent Sinsign*s to semiotically structure each visual interpretation of each experiential moment, to reveal what was seen/felt/done by each individual during the lived experience. Finally, the designer placed each *Dicent Sinsign* chronologically into thematic sequential storyboards, one for each individual testimony. The thematic sequential storyboards began to reveal to the designer-interpreter what each individual saw/felt/did so that it could be visually "read." From the beginning of the lived experience, to its culmination, the visually interpreted experiential moments of the lived experience in each storyboard revealed to the interaction designer-interpreter, its nuanced behavioural and emotional interactions. In this pilot study to develop the **VPM**, the 1st turn in its *visual hermeneutic circle* was the theoretical focus of experimenting with *Dicent Sinsign*s. The lived experience(s) that were visually interpreted into visual stimuli were all journeys. So from this visual stimuli of *Dicent Sinsign*s compiled into storyboards, the interaction designer could now begin to see how the *Dicent Sinsign* performed in structuring each

visual interpretation of each individual experiential moment. It was too early in the development of the **VPM** to begin Step 4, so the results of **The Dynamic Sinsign Project** were limited to just experimenting with the designer-generated creation of visual stimuli from the sensory data.

The interaction designer using the **VPM** could now process raw sensory data of a lived experience, into the visual stimuli that used a visual language of the interaction designer-interpreter's own creation. The use of designer-interpreter's own visual language helped him to visualise what he has understood about what 'users' saw/felt/did during a lived experience. *Dicent Sinsign*s helped synthesise Hermeneutic Phenomenology with Semiosis, as the DNA of each topic coded experiential moment mapped directly to the semiotic structure of a *Dicent Sinsign*. By applying the technique of montaging to the creation of each visual interpretation, meant that the direct experience in each experiential moment could be visually communicated. These experiments in visual interpretation resulted in *Visual Communication* demonstrating how it could, through the **VPM**'s *hermeneutic-semiosis*, show its viability to Interaction Design during its ideation phase. **The Dynamic Sinsign Project** was successful in demonstrating that the synthesis between Hermeneutic Phenomenology and Semiosis was possible to aid the interaction designer in examining what was seen/felt/done in a lived experience. The second project concluded at Step 3 with the completion of the first full interpretive turn of a *visual hermeneutic circle*. Although the main purpose and goal of this was on developing the **VPM** from theory into practice up to Step 3, the created visual stimuli began to visually indicate how a *whole* lived experience can be understood moment to moment. By engaging in "doing," the interaction designer-interpreter's own praxis generates his own emergent understanding of "what the user experienced," even if the designer is not directly "living" the lived experience himself.

The Dynamic Sinsign Project using the first three turns of the VPM (and its 1st turn in the visual hermeneutic circle) phenomenologically visually communicated what three individual people saw/felt/did etc. across three different lived experiences. Within the resulting visual interpretations behavioural changes were beginning to be indicate what was hidden behind users' words. Interaction designers through the act of phenomenological visual interpretation, through the facilitation of Visual Communication in the VPM (and its underlying hermeneutic-semiosis), created their own communicational situations to shape their own understanding of what happens in a lived experience. Now the results of the final practical project - The Circle of Visual Interpretation - will demonstrate how the VPM can do this, as it's aim was to develop the full methodology.

4.3: Reflection on the Third Practical Project

The Circle of Visual Interpretation project was the third and final practical PhD project to develop the **VPM** for interaction designers. It was designed to research three crucial areas: (1) the full development and implementation of all seven steps of the **VPM**; (2) the application of the **VPM** to a lived experience (simulating an inquiry that interaction designers would need to design a solution for); and finally (3) to create a delivery method that interaction designers could use. This meant that the **VPM**, using collected sensory data taken from Task 2 of the first project, generated sets of visual stimuli to reveal the *essence* of the simulated lived experience from **Internal | External 2010**. This third project was more thorough and rigorous than the second project, in that it used a single lived experience to test the completed **VPM** on. This meant that from beginning to end, all seven steps of the **VPM** had been followed by the interaction designer (from qualitative coding right up to the final visual interpretation), taking the visual interpretations beyond the individual experience and into the general structure that revealed the *essence* of the

lived experience. This final section will examine the results from this project and how successful the workshops with interaction designers were in developing the **VPM**.

4.3.1 The Seven Steps of the VPM

The Circle of Visual Interpretation project ensured that all the **VPM's** interpretive turns within the *visual hermeneutic circle*, were implemented and then workshopped with interaction designers. This meant that in this project the use of *Dicent Sinsign*s in visual interpreting would be applied to a single lived experience. It also meant that in order to develop the **VPM** up to Step 7, it also innovated the use of the higher functioning semiotic Sign of a *Dicent Symbol* (a higher semiotic Sign than a *Dicent Sinsign*) to ensure that a general lived experience could be visually communicated. In doing so, it gave the interaction designer the full methodological range (using *hermeneutic-semiosis*) to go deeper into researching what users saw / felt / did during a lived experience. By using the **VPM** the designer-interpreter could examine a lived experience at several levels of complexity: the individual level (Step 2), the collective individual level (Steps 3-4), the general *invariant theme* level (Steps 5-6), and the general experiential level (Step 7). The last three interpretive turns of the *visual hermeneutic circle* relied on the higher *symbolic* nature of the *Dicent Symbol*, to visually communicate the shared behavioural *themes* at a more general, deeper, semiotic level. The use of *Dicent Sinsign*s (4th Sign) at the individual level, helped to structure the montaged visual interpretations that visually communicated all the individual experiential moments. Whereas, at a deeper level of visual interpretation, the later use of *Dicent Symbols* (9th Sign) helped to reveal the general thematic structure of the lived experience.

The **VPM** immerses the interaction designer-interpreter within the act of understanding the subtleties of user behaviour, by empowering him[11] to be responsible for his own emergent understanding. The act of visual interpretation

11 In this discussion THE interaction designer in question is the author.

that the **VPM**'s seven steps facilitate, leads the interaction designer to visually communicate to himself (using the semiotic signifiers that the *Dicent Sinsign* and *Dicent Symbol* affords) the drastic or sudden changes in user behaviour that is indicated in the sensory data.

4.3.2 Visually Interpreting Lived Experiences

The second area that **The Circle of Visual Interpretation** project addressed was applying the **VPM** to a simulated lived experience, which interaction designers would need to understand in order to design a solution for. With the interaction designer immersing himself into a phenomenological inquiry to seek the motivations behind what was seen/felt/done by users in a lived experience, which the designer needs to design for, he is directly engaged in his own emergent understanding of what is taking place by utilising design skills he is familiar with to use with the **VPM**. It is these inherent skills (that all designers share) that the **VPM** employs. The interaction designer-interpreter is in his own communicational situation, in which he creates his own visual language to visually interpret. He uses both *Dicent Sinsign*s and *Dicent Symbols* to construct meaning, through semiotic means, in each visual interpretation. Whether the designer is focused on understanding the lived experience of individuals (*Dicent Sinsign*s), or the experiential structures that are generally experienced by many users (*Dicent Symbols*), the visual language he employs only has to be significant to himself.

For **The Circle of Visual Interpretation** project to fully develop the **VPM**, and test it for use by interaction designers on their own user research, it had to be used to analyse an actual shared lived experience. So this final project used the sensory data collected during the simulated project in **Internal | External 2010** of using an unusual touchscreen in a gallery environment.[12] This

12 The scenario for the application of the VPM focused on analysing sensory data from a controlled lived experience. Within the first practical project the choice of an unusual touchscreen interface, placed within a gallery environment (to add a level of additional unfamiliarity), was selected to test the possibility that the Deweyan concept of an *aesthetic experience* may (or may not) emerge. Therefore, the scenario that an interaction designer would need to understand the experiential behaviours that such a lived experience would entail, in order to design a future interactive, gallery-based, experience was used. At no point within this PhD research would that design problem result in an interaction design.

was collected from Task 2 of the *Experience Probe*, the videoed observations and the interviews.

The Circle of Visual Interpretation project began to generate actual results about what was seen/felt/done during the simulated lived experience. By applying all seven steps of the **VPM** to the collected sensory data, the interaction designer-interpreter began to identify areas of behavioural change in each cycle of the *visual hermeneutic circle*. These were areas that the interaction designer would begin to focus their attention on to inspire future interaction designs to positively enhance the experience. To illustrate what these results are, the final composite general image at Step 7 is the best example to use, as this is the natural conclusion to the whole process of visual interpretation.

In the final sequential storyboard (see Fig. 4.10) it can be seen at (a) that within the general experience of using an unfamiliar touchscreen within a gallery, the users felt anxious about beginning the session. At (b), generally the behaviour was engaged after some initial personal problem-solving as to what to do. This continued until at (c) the general user felt quite immersed in what they were doing. But then at (d) the general experience empirically indicated something within using the touchscreen interface angered them. Once this issue was overcome at (e) they would not return to a fully immersed state, but instead they became aware of the environmental ***noise*** around them in the gallery. This exposed them once again at (f), to a sense of anxiety of using an unfamiliar touchscreen in a gallery environment. Generally then at (g), once they gave themselves time to refocus there attention, the time then seemed to pass while they used the touchscreen. This was until a sense of frustration returned at (h) which then seem to translate into a period at (i & j) of feeling the interface intermittently unresponsive to what they wanted it to do, before reaching at (K) an impasse and giving up.

Although each participant in **Internal | External 2010** had an individual experience when they used the touchscreen, they all immediately shared three structural phases that could clearly be seen at Step 4 (see Fig. 3.24). Firstly,

all the participants had to begin to use the touchscreen (this was clear at the beginning of each participant's thematic sequential storyboard). How each participant began to use the touchscreen could clearly be seen in this visual stimuli. Secondly, what each participant did during their allotted time was also apparent, within each visual interpretation that the interaction designer interpreted from the sensory data. Finally, how the participants ended their own sessions was plain to see.[13] Through the application of *hermeneutic-semiosis* that powers the **VPM**, the interaction designer-interpreter transfers these important (but unsaid) user motivations behind their behaviour into the visual realm, using his own visual language to visually communicate these areas of behavioural change. This visual stimuli created by the interaction designer for himself, provokes in him fresh problem-solving approaches to Interaction Design in response to what he learns, as he was responsible for revealing the *essence* of the lived experience. This construction of the interaction designer's own understanding of what phenomenologically happened from each experiential moment (individual), or each experiential *theme* (general), pragmatically leads the designer to empathically 'share' in the users experience. In the next subsection, the importance of the short workshops at Interaction Design conferences to test the **VPM** with interaction designers will be outlined. An important part of this workshopping process was the design of the method cards that was chosen as a designer-friendly way to use the **VPM**.

4.3.3 The VPM*'s Method Card Workshops*

The third area that **The Circle of Visual Interpretation** project addressed was the workshopping of the completed **VPM** with interaction designers. The purpose of this workshopping was to iterate the **VPM** with interaction designers, to continue its development to meet their needs. This was done over two workshops held eight months apart. These workshops were run in

13 It is clear from an immediate glance across all the thematic sequential storyboards (see Fig. 3.24), where the visual language used in each Dicent Sinsign demonstrates areas of shared experience. This immediate information presented the interaction designer with *invariant* moments, which then begin to semiotically communicate the possible structure of a shared lived experience.

Fig. 4.10: A visual thematic storyboard demonstrating the immediate signifiers of drastic or sudden changes in behaviour (a-k), during a general lived experience. These signifiers, revealed by engaging in generating visual interpretations, which help interaction designers to pinpoint areas of interest to address in designing future interaction designs for that lived experience.

Amsterdam at the INTERACTION 14 conference in February 2014, and then in the following September in Tenerife at the INTERACCIÓN 2014 conference. A set of method cards was chosen to be the designer-friendly delivery method for the **VPM**. Within the time constraints of this PhD's allocated time-frame, to allow for interaction designers to report on their experience of using the **VPM**, only two design iterations of these method cards could be undertaken and workshopped. These two workshops were crucial to not only introduce and test the **VPM** with interaction designers, but also to garner immediate feedback on both the methodology and its implementation using the cards. The results of which informed the shaping of the **VPM** and through design iterations the **VPM**'s method cards were improved and redesigned. Face-to-face feedback on the 1st iteration of the method cards at INTERACTION 14 (see Fig. 4.11) revealed areas where the methodology's language could be improved for clarity. This led to six months of further development that

resulted in the 2nd iteration of the cards improving the clarity of terms and the written directions for the interaction designers. One discussion at the workshop, on enhancing the use of visual examples of how to visually interpret using montage on each card, directly resulted in a re-designed layout in the 2nd iteration (see Fig. 4.12). But the greatest result from the workshopping of the method cards came toward the end of the INTERACCIÓN 2014 workshop on the 2nd iteration of the **VPM**. During the workshop an interaction designer asked a crucial question so that she could gain clarity on the specific terms that the **VPM** used. Between steps 4 and 5, the focus shifts from understanding the lived experience from many individual perspectives, to a general perspective, which meant there was a shift in terminology referring to the individual and general experience.[14] This interaction designer had asked the author for his rationale in the shift between terms from experiential moments (individual) to experiential *themes* (general).

In verbally explaining this shift to the attended interaction designers, the author also went on to put the terminology shift in the context of how the *essence* of the lived experience can be read in final visual thematic storyboard (see Fig. 4.10). In explaining this the assembled interaction designers began to appreciate how the **VPM** complimented their ideation phase, and as opposed to just reading an academic paper or a report on such changes, how it gave them the ability to visualise and identify significant user behavioural changes. In this dialogue it was also possible for the author to reiterate how *Visual Communication* had contributed a fresh influence on Interaction Design.

In the workshop, during the explanation on the comparison of the visual interpretations of each individual's experiential moments at Step 4, it became very clear to the assembled interaction designers where the *invariant* moments were evident. They could see that the use of a particular visual language, created for and by the interaction designers themselves, helped to infuse

14 In the first turn of the VPM's *visual hermeneutic circle* (steps 2-4), the individual experiential moments are visually interpreted using *Dicent Sinsigns*. In the final three turns (steps 5-7) the experiential moments (that are visual interpretations of individuals' experiences) are clustered based upon those that are *invariant* and become known as *themes*. These *themes* are indicators of the general *invariant* structure of the specific lived experience being analysed, and use *Dicent Symbols* in this final phase of visually interpreting experience.

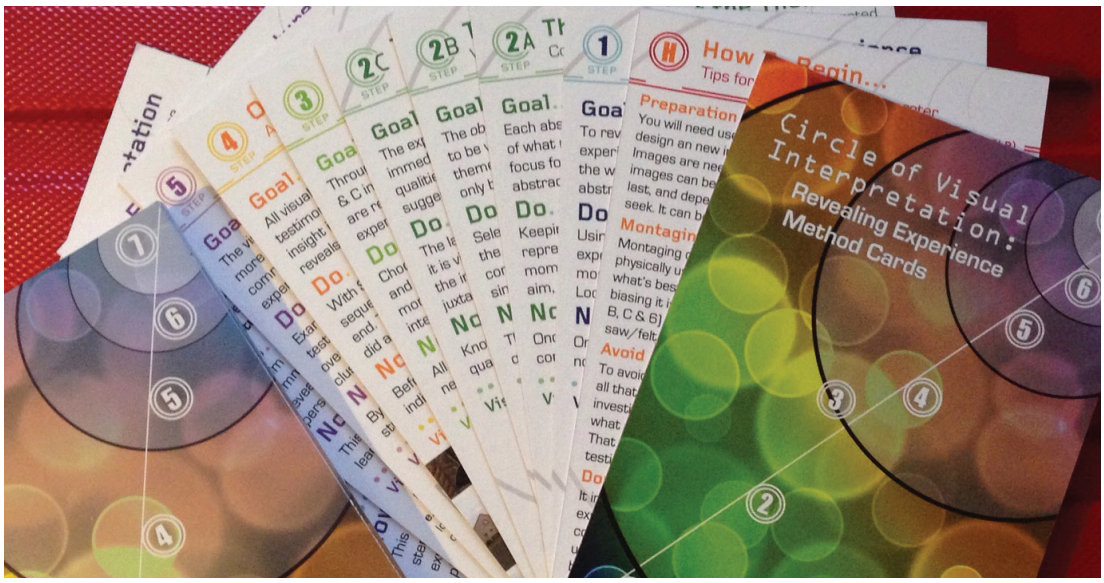

Fig. 4.11: The 1st iteration of the method cards.

Fig. 4.12: The 2nd iteration of the method cards.

the *Dicent Sinsign*s with the designers' own emergent understanding of the specifics of that lived experience. In taking them through steps 5 and 6 of the clustering and reinterpreting of the *invariant* experiential *themes*, the author at Step 7, could show the interaction designers how the revealed *essence* of the experience is visually communicated in the final visual thematic storyboard. In this context the workshop interaction designers could see a final generalised structure of the lived experience, semiotically structured with a higher level Sign of a *Dicent Symbol*. With each *Dicent Symbol* structuring the general visual interpretation of each *invariant* general experiential *theme*, it was fairly instantaneous how the designers could see where the behavioural issues lay in the visual stimuli. In the workshop this demonstrated that the **VPM**'s new synthesis of *hermeneutic-semiosis* (the **VPM**'s power source), was robust enough to form a methodology that interaction designers could use.

After the workshopping of the second iteration of the method cards at INTERACCIÓN 2014, the designers were asked for feedback as to which method card would be the most beneficial to their Interaction Design ideation phase. From this instant feedback, one interaction designer said that they could now "visualise an action" (WSP4, 2014, see Appendix E) to understand user behaviour, while another designer felt that "all of them [the cards]" would be useful (WSP3, 2014, see Appendix E). (see Fig. 4.13). In the following chapter this feedback will be discussed to explore this in more depth.

4.3.4 The Circle of Visual Interpretation Project Summary

The Circle of Visual Interpretation project developed the **VPM** up to its four full turns of its *visual hermeneutic circle*, and all seven steps of its method cards. The results it generated as experiments began to demonstrate how interaction designers could reveal the *essence* of a lived experience they need to design for, and what user behaviours need to be accommodated at which points of an interaction. To do so the **VPM** creates personal communicational situations for interaction designers by immersing them in a designer-focused

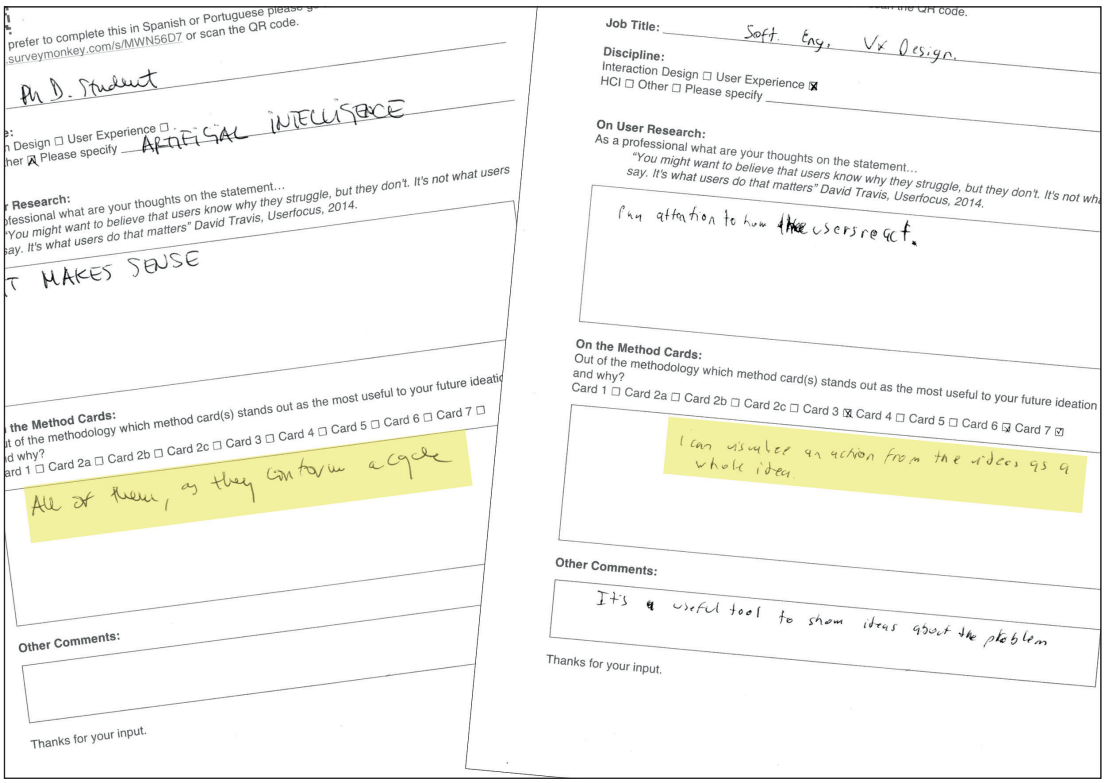

Fig. 4.13: INTERACCIÓN 2014 workshop participant WSP3 and WSP4's feedback.

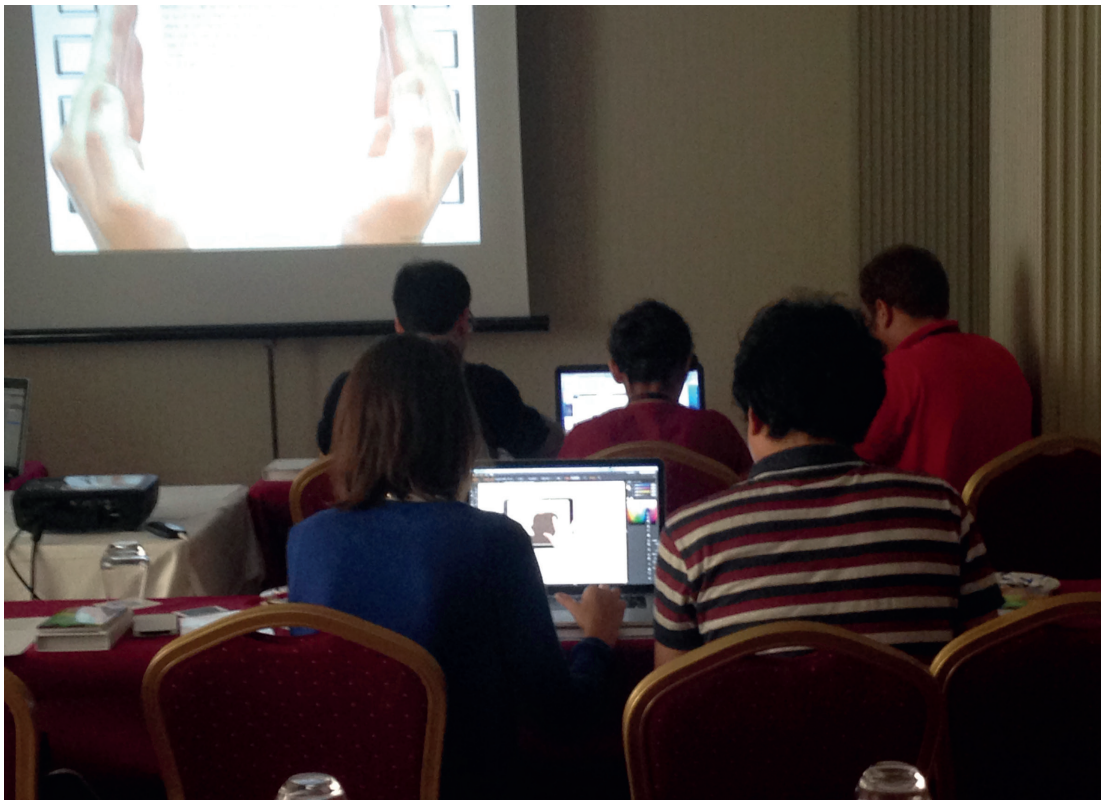

Fig. 4.14: A communicational situation: Interaction designers creating visual interpretations of sensory data during a workshop.

methodology of analysis. As the **VPM** reflects on designer's own praxis it provides the step-by-step process to phenomenologically reveal nuances of user behaviour and emotional interactions in a visual way. When using the **VPM** interaction designers place themselves as 'designer-interpreters' into a communicational situation (see Fig. 4.14), where they operate as both a ***Sender*** and a ***Receiver*** of visual information to understand their users. As a creator of the visual interpretations they encode from the sensory data, using their own visual language, what the user saw/felt/did during each topic coded experiential moment. The designer-interpreters develop an emergent understanding from phenomenologically revealing motivations that the user never made explicit by revealing the *essence* of a lived experience. In doing so, the seven steps of the **VPM** helps the designer-interpreters improve their future interaction designs. With the method cards interaction designers can repeat the **VPM** on any lived experience they have to design for.

This PhD began with viewing *Visual Communication* as a facilitator of behavioural change in ***The Receiver*** Frascara (2004), Forlizzi and Lebbon (2006), and Davis (2012), through "the design of communicational situations" which have an impact" on the knowledge, the attitudes, and the behaviour of people" (Frascara, 2004, p13). The interaction designer who uses the **VPM** uses *hermeneutic-semiosis* to structure their phenomenological visual interpretations, while *Visual Communication* facilitates the specific communicational situation, in which interaction designers' understanding can emerge. The **VPM** and its method cards aids interaction designers to generate their own understanding of a lived experience, through creating their own visual interpretations in an act of praxis in that communicational situation. The **VPM** facilitates designers to re-experience the users' lived experience themselves through visual interpretations, to 'see' the experience through the users' eyes, to reveal to themselves the *essence* of the lived experience they need to design for. The **VPM** helps interaction designers to create in their own phenomenological communicational situation, a new *perspective of reception* in which to understand

their users. By creating their own visual stimuli the **VPM** challenges the designers to use this emergent understanding to make their own behavioural changes in how they design future interactions for that lived experience.

To conclude Chapter 4 it is worthwhile to reflect on how the final PhD practical project performed based on the results it produced. A direct application of hermeneutic-semiosis in the VPM to analyse sensory data was facilitated successfully. Using Dicent Sinsigns, each visual interpretation of the individual experiential moments phenomenologically revealed participants' individual behaviours and motivations. Then, through the clustering of invariant behaviours into visually interpreted general themes, it was possible to reveal the essence of the simulated lived experience of using an unfamiliar touchscreen within a gallery environment. What was clear from the reporting of these results was that this PhD's main interest was on how the VPM worked, rather than reporting fully on the simulated lived experience. This was intentional and not an obfuscation, as firstly, this is a practice-based Visual Communication PhD, it isn't a social science-type thesis. Therefore what was revealed about the simulated Internal / External 2010 lived experience was a bi-product of developing the VPM. So to bring this thesis towards a conclusion, it is time to discuss the significance of these results in Chapter 5, and how they relate to Visual Communication re-influencing Interaction Design. Then in Chapter 6 the focus will be on explaining the VPM in full, placing the VPM in a context where it can demonstrate how it answers the research question.

Chapter 5: Discussion

In Chapter 3 the three practical PhD projects Internal / External 2010, The Dynamic Sinsign Project, and The Circle of Visual Interpretation were outlined, detailing the development of a Visual Phenomenological Methodology (VPM). This VPM answered the research question to reposition the influence of Visual Communication on Interaction Design. The VPM's new theoretical synthesis, called hermeneutic-semiosis, powered the use of a visual hermeneutic circle of interpretation that formed the seven steps in the method cards.

By using the VPM interaction designers could visually interpret what actually happened within a specific lived experience, rather than relying on what users think happened. As usability expert at Userfocus David Travis said, "You might want to believe that users know why they struggle, but they don't. It's not what users say. It's what users do that matters" (Travers, 2014). Further citing the work of the Nobel Prize winner Daniel Kahneman in support of his statement, Travers made the point that "our understanding of our own behaviour is an illusion" (ibid.). The VPM helps interaction designers to reveal fresh perspectives on user behaviour from the sensory data, which are not accessible from existing methodologies.

In this chapter the consequences of those three projects will be discussed in more depth, and it will consider the effectiveness of the VPM through its design outputs. It will consider the implications of critical feedback received from a variety of peer reviewers,[1] and from workshopping the VPM with interaction designers. This critical discussion will address four important areas directly.

1 This thesis crosses boundaries between *Visual Communication*, Interaction Design, HCI and into the broader area of User Experience (UX) design. So the VPM needed to be communicated in an inter-disciplinary way. Between mid-2013 to mid-2014, the development of the *hermeneutic-semiosis* was still emerging from its theoretical ground, into what would become the full VPM. Peer reviews were sought from writing journal papers. These were intended as positional papers rather than final write-ups with conclusions, to gauge a suitable inter-disciplinary writing style and tone, and whether the nascent VPM made sense. Thankfully, there were positive comments made by reviewers that tentatively indicated the research question could be answered by developing the VPM.

It will show the effectiveness of the hermeneutic-semiosis behind the VPM, while discussing the methodological decisions that went into its development. The chapter will conclude with how Visual Communication in the VPM, before a general discussion focusing on the meta-problems encountered in running three practical PhD projects.

5.1 Understanding the Phenomenological Theory

The primary challenge to the author during developing the PhD was to understand the theoretical underpinnings of Hermeneutic Phenomenology. This PhD thesis theoretically first moved into Phenomenology through reading Harrison's 2007 paper *The Three Paradigms of HCI*. It then began to adopt a hermeneutic approach from reading Dourish's Interaction Design book *Where The Action Is* (2004). Without developing a philosophical understanding of Hermeneutic Phenomenology it would not be possible to attempt to synthesise the **VPM** with *Visual Communication*, in order to answer the author's research question.

But throughout the period of the first practical project, the author's initial understanding of Hermeneutic Phenomenology was still developing. He had identified this as the phenomenological school to ground the development of the **VPM** in, as being the interpretive form it was more flexible to map with *Visual Communication*, through Frascara's perspective of the discipline being a facilitator (through the manipulation of type and image) of behavioural change. Hermeneutic Phenomenology would be beneficial in the existential exploration of a 'user' through an act of interpretation of a lived experience. From Dourish a further review of the literature to develop the **VPM** suggested that a *hermeneutic circle* was a useful theoretical tool to use. Through a tangential search of academic practice-based Nursing literature (which had a strong record of integrating and implementing phenomenological theory into practice-based methodologies), the author quickly developed enough understanding of Heidegger (who was the key hermeneutic theorist to use)

so that a synthesis with Semiosis (*hermeneutic-semiosis*) could be made. Two key sources that helped the author to develop his understanding of how to develop a practice-based methodology was the work of Moustakas (1994) and van Manen (1990).

Moustakas and van Manen's own methodologies had been embraced by practice-based nursing researchers to shape their person-centric research methods. Moustakas' approach was eidetic in nature, while van Manen was more hermeneutic in his approach, and between their writing the author's understanding of hermeneutic phenomenological methodologies grew. In developing his understanding the author also needed to understand how and where this knowledge would be used in developing the **VPM**. So he developed a metaphor to explain it to himself and to others:

> The **VPM** was like a car, it was a practical thing that any interaction designer could use to 'drive' from A (not understanding user behaviour and motivations during a lived experience), to B (understanding what took place). The **VPM** would take a designer-interpreter on a research journey, to visually interpret a lived experience in order to understand the behaviour. Like any vehicle the **VPM** needed an engine to power it, and a *visual hermeneutic circle* of interpretation was that engine, powered by *hermeneutic-semiosis*.

It became clear to the author that the act of visually understanding a lived experience would help *Visual Communication* to reposition itself as a fresh influence on Interaction Design. The author developed the **VPM** with an understanding of how the theoretical underpinnings of Hermeneutic Phenomenology would connect with visual communication techniques through Semiosis.[2] The **VPM** was developed into a seven step process that adapted a visual form of a *hermeneutic circle* of interpretation, powered by his *hermeneutic-semiosis*.

5.2 Synthesising Hermeneutic-semiosis

The **VPM** benefited from the synthesis between Hermeneutic Phenomenology and Semiosis, but this *hermeneutic-semiosis* was not without

2 One peer reviewer during early dissemination misunderstood this. A paper was submitted to *The Design Journal* in 2014 and one peer reviewer had conflated my use of the *hermeneutic circle* in the VPM, with the step-by-step nature of the VPM's dissemination through the use of method cards. The reviewer had thought that this was entirely "at odds with the way in which [the *hermeneutic circle*] is developed within interpretive Phenomenology" (DJ2, 2014, see Appendix E). This was not what the author was discussing in the paper, and so it was not at odds at all. Each method card utilises a different stage of applying the *hermeneutic-semiosis* to whatever experience is being analysed. This structures all moves through the *visual hermeneutic circle* in order to visually interpret an experience.

its teething troubles. The author made the connection that Peirce's Semiosis would be the best form of semiotic theory to use, as both Interaction Design (through HCI) and *Visual Communication* were aware of the theory. It was in O'Neill's 2008 book *Interactive Media: The Semiotics of Embodied Interaction* that acted as the final connection through his *phenomenology of signification*. To reinforce the choice of Peirce's pragmatic form of semiotics, Pragmatism was already an established underpinning philosophy within both Interaction Design and HCI. Peirce's Semiosis was a natural choice for the **VPM**, as it also incorporated phenomenological thinking within its logical structuring of how Signs communicate.

For Semiosis to successfully communicate the concept (*Object*) semiotically, encapsulating the meaning being visually communicated, a Sign has to help ***The Receiver*** to interpret it through how its represented (its *Representamen*). This depends on ***The Receiver's*** own personal *pre-understanding*, as what ***The Receiver*** already knows is important. If they are not already aware of the concept (*Object*) in some form (based on previous knowledge), then they will not interpret the Sign in the desired way. This *pre-understanding* exists within a *socio-cultural* context, and it forms the interpreters 'background experience' to interpret each Sign successfully. This was an important fact that the author had to factor in when synthesising Semiosis into the **VPM**. This is why, in using the **VPM**, interaction designers mediate their own understanding of user motivations and behaviour in two important ways.

Structured by the synthesis of *hermeneutic-semiosis* within the **VPM**, for the interaction designer to phenomenologically reveal the *essence* of a lived experience, he or she employs his or her own natural praxis in the act of visually interpreting. The second form of designer mediation rests in a *perspective of reception* (Bergström, 2008, pp32-33), where the interaction designer (as ***The Receiver***) develops his or her own visual language to signify each experiential moments' *Object*, quality and context to visually communicate their own understanding to themselves. This was designed into the **VPM** as a way for

interaction designers to channel their *pre-understandings* into the act of visual interpretations WITHOUT it biasing the emergent understanding. This was achieved by restricting the interaction designers *pre-understanding*, by the use of topic coding and *Dicent Sinsigns*/*Dicent Symbols*, to structure the most suitable visual interpretations of a lived experience from the sensory data.

Semiosis (sign-action) had been chosen over Saussure's semiotic theory as it was an "active process between the Sign and the reader of the Sign" (Crow, 2010, p34). The "meaning of the Sign will be affected by the background of the reader" because "their background, education, culture and their experiences will all have a bearing on how the Sign is read" (*ibid*). This has already been addressed above, with interaction designers (operating in a state of *Secondness*) creating their own visual interpretations. But from an early piece of dissemination on the **VPM**'s synthesis, a peer reviewer commented on a perceived incompatibility between Heidegger's approach to Signs and semiotics. The reviewer commented that:

> "I really can't see that semiotics is at all compatible with interpretative phenomenology (or practice theory more generally) as semiotics takes as it's basic starting point the idea that interpretation is based on our reading of basic elements (Signs) whereas interpretive phenomenology rejects all atomistic approaches to theorising about meaning, interpretation and understanding and instead draws our attention to the essential holism of our experience. Much of Heidegger's '*Being* and Time' can be read as a critique of the idea that we should start with Signs as the basis for our understanding of interpretation and instead recognise that is our background experience of holistic situations, holistic configurations of media and so on, that make interpretation possible. It is only against this background experience that anything like a Sign can temporarily come to the fore" (DJ2, 2014, see Appendix E).

This compatibility issue that this feedback raised was very important, and needed resolving in regard to synthesising *hermeneutic-semiosis*. The peer reviewer's criticism revolved around their own understanding of 'semiotics' compared to the definition of what a Sign is in Heidegger's work. The reviewer's final sentence is where Peirce's Semiosis trumps the structuralist semiology of Saussure, which is the dominant theory for understanding semiotic Signs, but not the only theory of how Signs work. Although not as well known as Saussure's theory, Semiosis has a phenomenological ground to its pragmatic semiotic theory. To Peirce, a semiotic Sign was not just an "atomistic" element, it was part of a holistic situation operating on three phenomenological levels of

Firstness, *Secondness* and *Thirdness*.[3] Jappy describes these phenomenological states as:

> "*Firstness* covers potentialities such as properties, qualities, etc., that is entities which have no independent existence; *Secondness* corresponds to individuals and the individual facts concerning them, whereas *Thirdness* corresponds to generalities, that is entities which transcend the individual and his existential world" (Jappy, 2013, p74).

In Semiosis, a Sign is not a mere atomistic entity but a logical triadic construct of communication. Visual communication of a message can only happen if ***The Receiver*** reads the Sign from within a phenomenological state, where the Sign will 'temporarily come to the fore' to communicate. That visual communication of meaning, can only be successfully interpreted by ***The Receiver***, because of their own personal background experience. This very important point demonstrates that Peircean pragmatic Semiosis has more akin to Heidegger's existentialism than Saussure's Structuralist semiology does. The author welcomed the peer review as it reinforced Peirce's Semiosis as the stronger form of semiotics to synthesise into a *hermeneutic-semiosis*.

5.3 Designing a New Methodology

Taking Norman's central argument (1999, p16) that designers must adapt methods to suit their design process, the design of the **VPM** was synthesised from existent methodological models into a new methodology. As such, *Visual Communication* could demonstrate to Interaction Design how it can practically contribute, beyond 'doing the visual design.' So the first PhD project **Internal | External 2010** designed the phenomenological research tools the **VPM** needed for the visual interpretation of a lived experience. It also provided a simulated research project to collect sensory data from using the tools. **The Dynamic Sinsign Project** developed the use of montage[4] in creating the visual interpretations, while **The Circle of Visual Interpretation** project completed the **VPM** and designed its dissemination method to interaction designers in the form of method cards.

3 Section 2.4.2 of the contextual review outlined these levels as states of perception of *Being*.

4 Montage (compositing) Combining pictorial elements from various sources and compositing them into a new image i.e. photo-montage.

As can be seen in Appendix A a wide variety of quality, participant-generated sensory data was generated from all three practical projects. This could only be achieved phenomenologically by designing the **VPM** to use a specific set of methods and tools. To collect the sensory data this PhD had to adapt these phenomenological 'tools,' as there were no immediate, pragmatic 'off-the-shelf' tools ready to use. The first practical project adapted an *Experience Probe*, observation, and semi-structured interviews[5] as phenomenological tools that synthesised visual communication techniques with hermeneutic phenomenology. The second and final practical project designed the use of the *visual hermeneutic circle* and how the *hermeneutic-semiosis* that powered it would work.

In this respect, *Visual Communication* facilitated the design of all the methods and tools the were designed into the **VPM**. From the *probe* design to the crafting of visual interpretations utilising *hermeneutic-semiosis*, *Visual Communication* and its techniques were actively involved. The link between visual communication techniques and Semiosis is a close theoretical link. The fact that *Visual Communication*, from a Frascaran perspective, is a facilitator of behavioural change meant that to shape interaction designers own understanding of a lived experience, it could cross theoretical and practical boundaries to create the **VPM**.

5.4 The Complexity of the Methodology and 'Jargon'

This PhD thesis' intention was to make the **VPM** a trans-disciplinary methodology, but in doing so there was a very critical problem to resolve the joint issue of theoretical complexity and jargon. The subface of the **VPM** was theoretically complex, but its final dissemination through the creation of method cards simplified the methodology into seven practical steps. Peer

5 The adaptation of the interviews and observation were easy thanks to the work done by phenomenological researchers within nursing, which took a very practice-based approach. Both the semi-structured interviews, and observations also used Csikszentimihalyi's eight components of a *phenomenology of enjoyment* in their adaptation. These eight components provided a framework to structure the observations, and post-observation interviewing based on *Experience Probe* task returns. While in itself the *phenomenology of enjoyment* is neither hermeneutic or eidetic, its neutrality was helpful to ensure that any participants in the research gathering phase of the first project, maintained their objectivity when recounting their experience. It was useful in calibrating participants' *Experience Probe* responses in communicating their lived experience, without biasing their testimony.

reviews from an early dissemination of the **VPM** highlighted this issue. One peer reviewer remarked in 2013 that, "the audience of design practitioners is not familiar with the theoretical underpinnings of the method" (JUS1, 2013, see Appendix E). The reviewer continued that the **VPM** was "hard to follow and understand if one is not familiar with the discipline" (*ibid*.). The author found this critical peer feedback useful, as it reflected the author's own initial worries about the theoretical terms underpinning the **VPM**.

Pragmatically, the **VPM** had to be able to be used immediately by any interaction designer, but to explain it to interaction designers this complex terminology (from Peircean semiotics and Hermeneutic Phenomenology) proved a challenge. Such Peircean terms as *Rhematic Dicent Sinsigns*, *Interpretant*s, and *Representamen*; and phenomenological terms such as *invariant constituents*, *Dasein*, etc. naturally are alien to anyone outside each specific philosophical discipline. But one discipline's common term is jargon to another discipline. Although it was never the author's intention to obfusticate through the use of jargon, the Peircean and phenomenological terms were originally employed by the authur at face value. [6] Thankfully Ken Friedman on the PHD-DESIGN forum had made a useful statement regarding jargon:

> "While some people use fancy words and jargon to mystify and puzzle their listeners, many don't. They use words that function as tools of the trade, and they use them knowing that any working researcher in the field who hears such a term will understand it." (Friedman, 2011).

The interaction designers who would use the **VPM** "in the field" couldn't afford the time to study any underlining theories. These interaction designer-interpreters would need their "tools of the trade" to be 'ready-to-hand' if their understanding of a lived experience were to emerge from the sensory data. Any "working researcher" in Hermeneutic Phenomenology or Peircean Semiosis would of course understand any specific theoretical terms, but the peer reviewers were seeing these terms as jargon, and a form of obfuscation

6 Don Ihde refers to this as the "essential obscurity" (Ihde, 2012, p6) of philosophical language, which is temporary. He explains that if a method is, "genuinely radical and new, then its new concepts and methods will in some degree be unfamiliar and strange — at least at first. (...) A new language will flow from the new concepts, or at the very least, new meanings will be given to older terms" (*ibid*., p6). Therefore the visual communication of the VPM would have to be very "user-friendly" and offer the user both visual and textural directions to what to do with a totally unfamiliar tool. This design consideration would off-set any initial "essential obscurity" felt by interaction designers, while getting them productive very quickly with the methodology.

to interaction designers. This perception was a legitimate criticism to the early development of the **VPM** and its method cards. The author decided to mask the complexity in writing the text of the method cards, by employing new, designer-friendly meta-terms. Just as a graphical user interface (GUI) masks the complexity of it's underlying code,[7] the **VPM** needed an 'interface' of accessible terms that would mask its theoretical complexity.[8] As a result the new meta-terms used in the method cards' text were more designer-friendly to direct the interaction designers in using the **VPM** (e.g. *invariant constituents* became experiential 'moments' that overlapped, and "abstract" became 'code,' etc.). But while making the use of the **VPM** easier to understand, the meta-terms needed to remain theoretically sound to the underlying process of *hermeneutic-semiosis*. So the principles behind the terms were translated while keeping true to its important *hermeneutic-semiosis* methodology. As "if you take a method without its principles & thinking behind it, you will likely make the situation worse"(Cooper, 2014).

5.5 The VPM*: a Method or Methodology?*

By engaging in early dissemination and peer reviews of the **VPM** also raised the issue amongst some peer reviewers whether the **VPM** was a method or a methodology. It has been clear throughout this PhD thesis that the **VPM**, developed from theory to praxis, is a fresh qualitative methodology in the true sense "to gain knowledge" (Duffy, 1985, p225). But during **The Circle of Visual Interpretation** project some peer reviewers were confused on this matter. While one reviewer stated that the author's paper submission had "generated quite a bit of discussion," and that the **VPM** presented "some intriguing and provocative ideas" (DIS4, 2014, see Appendix E), another reviewer stated that, "the authors [sic] have a 'method' not a 'methodology'" (DIS3, 2014, see Appendix E).

7 The analogy of a GUI to the development of the method cards, using meta-terms to mask its complex subface, is a sound model. If done well the user of a GUI is unaware of its underlying complexity.

8 As interaction designers would not be able to first read this PhD's critical analysis of the technical terms.

This debate amongst reviewers was very useful to ensure that the demarcation between the **VPM** (methodology) and its method cards (method of dissemination) was clear. The primary reviewer acknowledged the point that "either are of course valid" (DIS4, 2014, see Appendix E) but the **VPM** is a methodology, and the cards are a designer-friendly method of using the **VPM** to gain knowledge of a lived experience they need to design for. The method cards are one possible method of using the **VPM**. Future researchers may develop alternative methods, but the **VPM** will always remain a (qualitative) methodology.

Through following the method card steps to visually interpret each experiential moment of the lived experience, interaction designers can see their understanding of what users saw/felt/did emerge, through the act of visual interpretation. These designer-interpreters' knowledge of the general lived experience emerges from their understanding of the users' own *perspective of proximity*. This reverses the relationship an interaction designer is usually in. The **VPM** places the interaction designer-interpreter in a *perspective of reception* (which is usually occupied by the user), by following the methodology that embraces a *visual hermeneutic circle* to structure designer-interpreters' visual interpretations.

5.6 Workshopping the VPM

The workshopping of the **VPM** was an integral part of the PhD's timeframe, as it provided a direct access to interaction designers in order to develop the **VPM** into a methodology that worked.[9] During **The Circle of Visual Interpretation** project in 2014, workshops were planned at two international Interaction Design conferences. The first workshop took place in February 2014 at INTERACTION 14 in Amsterdam, where the first iteration of the method cards was workshopped with 23 interaction designers from six continents. The second method card iteration was workshopped in the

9 Within the timeframe of the PhD it was not possible to develop the VPM and apply it directly to commercial projects, or to work in real-time with interaction designers.

following September with 12 international interaction designers, at the INTERACCIÓN 2014 conference in Tenerife. These two conference workshops provided a critical environment testing two iterations of the method cards with interaction designers.

These two workshops were crucial in observing interaction designers using the method cards, and gaining immediate feedback from them. So it was gratifying to see that the interaction designers greeted the method cards with enthusiastic interest. The designers accepted that the workshops could only ever be an introduction to the **VPM**, and that the experience of using the method cards within a conference room environment, was always going to feel artificial. The workshops could only ever provide a synthetic experience of applying the **VPM** to sensory data due to time restrictions. So both of these workshops used the sensory data from **Internal | External 2010's** *Experience Probe* and observations. In doing so, the author also provided the image bank[10] resource for interaction designers to use during the workshop. With these resources the workshops allowed the interaction designers to try the **VPM**, and consider how they could apply it to their own user research. At the end of each workshop every designer took a pack of method cards back to their own company, and those interaction designers who wished to take the testing of the **VPM** further could.

5.6.1 The INTERACTION 14 workshop

The first workshop lasted three hours, during which time only the first part of the **VPM** was workshopped. The author found that a disproportionate amount of time during the first 90 minutes of the workshop, was spent on

10 Before applying the VPM to understand a lived experience, it is important for a designer to create a resource of photographs that capture the qualities and context of each experiential moment's *Object*/quality/context. These are identified from keywords that are topic coded in the sensory data from searches of image libraries, Google Images, Google Maps, Flickr, etc. These photographs are filed into folders on a hard drive in preparation to montage. The form this image bank resource takes depends upon each design team employing the VPM, but it will take time to compile. How much time is hard to say, as both searching for, and then sorting suitable images, ready to montage will depend on the quality of the sensory data and keyword searches. If it's a team effort then someone can take the role of a picture editor in support of the team, who will concentrate their efforts on montaging each visual interpretation from the picture editor's image bank. An image bank is only a resource and not an outcome in itself. It still requires the skill-set of a designer to combine and use images from this resource, in exciting ways to create visual interpretations. This collection and selection of images for the resource could be done 'as and when needed,' and could be collated as the sensory data is being coded during Step 1 of the method cards.

discussing the qualitative coding of the sensory data. This was only Step 1 of the **VPM**. Qualitative coding was new to many participating interaction designers, and although this did lead to some very worthwhile conversations on identifying and coding experiential moments, it did slow the delivery of the workshop down. This meant that during the allotted workshop time, the interaction designers did not proceed beyond Step 3 of the method cards. In the first hour of the workshop some really interesting discussions on semantics, mainly in regard to the cards' text, was also being made by one of the groups.[11] It was interesting to observe that their issue was less about any perceived 'jargon,' and more about a clearer, less academic, step-by-step guide that the interaction designers could follow.

In order to develop new, trans-discipline, designer-friendly meta-terms, the question of the writing of the card text, for each of the seven steps, was an important point to workshop. The interaction designers provided a few suggestions as to how they, as designer-interpreters, would prefer the tone of the text to sound, as a few designers remarked on the 'academic' tone of the cards. Some of the interaction designers appeared to have a problem with the use of the term 'abstract,' both as a verb and a noun. It was interesting for the author to see that the interaction designers workshopping the **VPM** for the first time, had differing concerns to the peer reviewers who only reviewed an early pictorial paper on the **VPM**. The author found that in opposition to the peer reviewer, the interaction designers during the workshop were more focused on what the text actually said, rather than being "text-heavy" (DIS1, 2014, see Appendix E). The designers did not criticise the method cards for being "text-heavy," but they did require the text to clearly indicate what they must do to apply the **VPM** to sensory data.

A positive aspect of this workshop meant that the interaction designers had to trust both their own abilities (and *pre-understanding*) that they brought to the analysis. After all, the method cards of the **VPM** could never 'tell' the

11 The 23 interaction designers were split into four groups, to make it easier to observe how the designers engaged with each method card step.

designers anything about the lived experience. Only by using the **VPM** could interaction designers reveal to themselves the experiential *essence* of a lived experience, emerging from their own relationship with the sensory data through praxis. It was interesting to see and hear the interaction designers different responses to using the **VPM**. Some groups positively debated the visual interpretations they were making from the supplied sensory data, while others debated what the visual interpretations would reveal.

As each participant left the Amsterdam workshop with a free pack of method cards to try out on actual projects, a follow up email was sent to all the interaction designers (see Appendix E) to see if any of them had attempted this. This email, sent six weeks after the workshop, included a PDF copy of the unpublished pictorial paper (see Appendix A, pp76-85) that the author had had peer reviewed. This paper was a quick 'bug fix' to the text issue the interaction designers had encountered with the 1st iteration of the cards. This email resulted in a brief correspondence with one Japanese interaction designer (Inobori, 2014, see Appendix E), who had found the first workshop useful. He had found that the text 1st iteration of method cards was too difficult to follow once he was back home. This was certainly due to the 'academicness' of the 1st iteration text (as identified within the workshop). It meant that the cards were not as designer-friendly as they possibly could be, and were not successfully communicating the **VPM**'s steps as well as they could.

The author was disappointed that there were no further post-workshop feedback from the other interaction designers, after sending out the additional PDF. Despite this, he felt confident enough that the card text needed to be completely rewritten for the 2nd iteration of the method cards, as this was a main feedback point during the workshop. The rationale for doing this was to a) reduce any initial user anxiety that the interaction designers may have when using the cards on their own projects, and b) ensuring that the goal of each step was made clear in the text.

5.6.2 The INTERACCIÓN 2014 workshop

The second workshop was held seven months after the first, and all seven steps of the **VPM** were workshopped over four hours, using a 2nd iteration of the method cards. Following feedback from the first workshop these seven steps had been rewritten, with a change of tone from passive to proactive that afforded a sense of *dynamic* ownership of the **VPM** by the interaction designer-interpreter. The language of the methodological steps went from passive, to directly addressing the interaction designer with a clearer set of instructions, so that each designer understood why they were performing each step in the **VPM**. This changed the structure on the cards from a triad of directions, reading in the 1st iteration as "Goal…, Do…, Now…" to "Goal…, Why…, Do…" in the 2nd iteration. From this subtle change of the section titles, the directions under each section were also rewritten, and the whole lex*icon* of technical terms changed too to reduce the interaction designer-interpreter's *perception of complexity* (e.g. *invariant constituents* became experiential 'moments' that overlapped, and "abstract" became 'code,' etc.).

The interaction designers at the INTERACCIÓN 2014 workshop were a new group, and compared to the first workshop they could follow the instructions on the 2nd iteration of the method cards much easier. The author was encouraged by this improvement in prose, tone and delivery, especially as English was not the first language of the workshop's interaction designers.[12] To augment the text changes in the 2nd iteration, the supporting visual examples that illustrated each step in the **VPM**, were moved to the reverse of the card. These visual examples came directly from the visual interpretations made in **The Circle of Visual Interpretation** project.

The 'type' of interaction designer at the workshop ranged from 'User Experience,' through 'HCI/accessibility,' to 'Artificial Intelligence.' This range of specialist interdisciplinary backgrounds of the interaction designers was an

12 The workshop interaction designers were mainly from South America and Europe, with backgrounds in psychology, and linguistics, There were some design students (undergraduate and postgraduate) present from Tenerife.

interesting extra dimension, which the author had not anticipated. It was of interest to the author's research to see if interaction designers, with differing specialist interests, may wish to use the **VPM** in different ways. So as part of the workshop's evaluation in a short voluntary questionnaire, the author asked the interaction designers to state which cards were more useful than others. This would gauge if different **VPM** steps appealed to different types of interaction designers. As the workshop slightly overran its four hours, only a quarter of the workshop participants found the time to respond.

Two interaction designers from a 'HCI/accessibility' background found cards 2 and 3 most useful to them. In comparison, it was interesting to see that another interaction designer from a 'User Experience' background, found steps 6 and 7 more useful. Finally one interaction designer from an 'Artificial Intelligence' background, found all seven steps useful, as the designer appreciated the full cycle of interpretation using the underlying *hermeneutic circle*.

This was interesting as the workshop did offer an insight to how the **VPM** could be used more flexibly, depending on the needs of the interaction designers. Those interaction designers interested in accessibility issues within a lived experience would logically use steps 2 and 3 of the **VPM**, as these two steps deal with visually interpreting each individual's personal experience. Once they are individually revealed Step 4 would be used to compare the individuals' experience of accessibility. Whereas the designers who were more interested in a general user experience would benefit from engaging in the whole seven steps of the **VPM**, as the two final steps, after the clustering of *invariant* experiential *themes*, reveals the *essence* of the general experiential structure. This means that those interaction designers interested in accessibility, may only wish to take one interpretive turn using the *visual hermeneutic circle* to reveal a myriad of individual experiential moments. But those interaction designers interested in the *whole* user experience, would be inclined to follow all seven steps, completing four interpretive turns of the *circle*.

However at this stage of developing and initially workshopping the **VPM**, this remains only an assumption. More research would be needed if the method cards were to be applied within an industrial context, to test these initial assumptions and investigate the application of the **VPM** by Interaction Design specialism. But this is beyond the immediate scope of this PhD thesis. The immediate impact of the **VPM** on interaction designers in the workshop was demonstrated in a final comment from the 'User Experience' designer. They commented that the method cards were, "a useful tool to show ideas about the problem" of not what users say, but what users do (WSP4, 2014, see Appendix E).

5.7 Clarifying the Position of *Visual Communication* in the VPM

It is important to now focus on how *Visual Communication* has been utilised within the **VPM** throughout all three practical projects, in facilitating interaction designers' understanding of lived experiences. *Visual Communication* outcomes have been ubiquitous in these projects from the design of the **VPM's** sensory data collection tools, through visual interpretations, to the method card iterations. These outcomes demonstrate that *Visual Communication* contributes more to Interaction Design than just 'visual design' at the end of its design process.

Beginning with the design of the phenomenological tools used in the collection of sensory data, *Visual Communication* played a major role ensuring participants' positive reception of the tasks to complete. *Visual Communication* facilitated this by capturing the participants' imaginations, seducing them to take part in the data gathering tasks. Some participants were quite expressive in their final interview feedback about what was visually communicated in the probe tasks. User C thought the "postcards was [sic] interesting" (see Fig. 5.1a) enough to engage, while User F commented that the "probe [was] exciting and mysterious. Intriguing to use" (see Fig. 5.1b). This made it clear that *Visual Communication* was a crucial motivating and disseminating factor, in the participants' engagement in the data collection of a lived experience. But

Visual Communication's influence went much deeper in the second and third practical projects.

In the final practical projects (which focused on developing the **VPM** itself), *Visual Communication*, through the use of montage, was at the centre of visually interpreting what was seen/felt/done during a lived experience. In existing phenomenological research methods any analysis would be descriptively written by the researcher. But in the **VPM**, montage (utilising *Dicent Sinsigns* and *Dicent Symbols*) is used to visually communicate what had happened in the lived experience by interaction designer-interpreters. By adopting montage to visually interpret the lived experience, it allows interaction designers' understanding of it to emerge from praxis and they can avoid biasing the interpretation process. Montaging is structured within the process of *hermeneutic-semiosis*, which means that the imagination of the designer-interpreter is first channelled by a *Dicent Sinsign* to visually interpreting experiential *Object*s/qualities/contexts within each lived experience.

When it came to this act of visual interpretation of the sensory data, the question as to how a visual interpretation should be made by interaction designers became important. Montaging visual interpretations of a lived experience, retains the semiotic *dynamic* connection to a direct experience. If drawing was used to form the visual interpretations, it would just become an 'illustration' of something that *iconically* resembles (or just shares) a quality with the direct experience. Unlike montage, drawings would be too removed from any existential connection to the original lived experience. Visual interpretations require a sense of *dynamic* connection to the direct experience. If drawn the visual interpretations would be phenomenologically *inauthentic*, and susceptible to interaction designer-interpreter bias. This question of *inauthenticity* of a drawn visual interpretation does not rest on whether a drawn interpretation is realistic or abstract. Any drawn visual interpretation would struggle to signify meaning at any semiotic level higher than Peirce's second

Sign, a *Rhematic Iconic Sinsign*. Any drawn visual interpretation could only ever be a possibility (*rheme*), with an *immediate* interpretation (*Interpretant*), operating only as a mere *iconic* image, which it is not sophisticated enough to *indexically* visually communicate a direct experience, nor any general experiential structure at a higher *symbolic* level. A drawn visual interpretation semiotically can signify nothing more than the merest possible shared quality of a experiential moment. It does not have any phenomenological *dynamic* effect on revealing the *essence* of a lived experience beyond a superficiality, as it can only semiotically operate in the phenomenological state of *Firstness*.

To semiotically visually communicate what was seen/felt/done in each experiential moment, the **VPM** takes the interaction designer into the deeper phenomenological state of *Secondness*. The **VPM** asks more depth from interaction designer-interpreters in order to help them to reveal to themselves the deeper meaning of a lived experience. This depth is extrinsic to each visual interpretation that is made. As it comes from a perception of "existence or existential relations" (Huang & Chuang, 2008, p5) between the sensory data and the imagery it suggests to the designer-interpreters. The state of *Secondness* in which *Dicent Sinsigns* work prevents designers from creating a 'drawn illustration' of what they think represents the lived experience, as a *Dicent Sinsign* must *indexically* point to the direct experience. Drawing a visual interpretation will never visually communicate at a semiotic level of meaning beyond mere *iconic* representation.

To signify an experiential moment through a visual interpretation at deeper *indexical* and *symbolic* levels, montaging is better suited as it phenomenologically reduces the potential for interaction designers personal bias from affecting the interpretations as they have to first source photographs to montage. These photographs (saved into an image bank) in part represent the *Object*, qualities and context of each experiential moment, sourced with the keywords that the topic coding suggested, which phenomenologically remind the designers that they can only visually represent what was in the

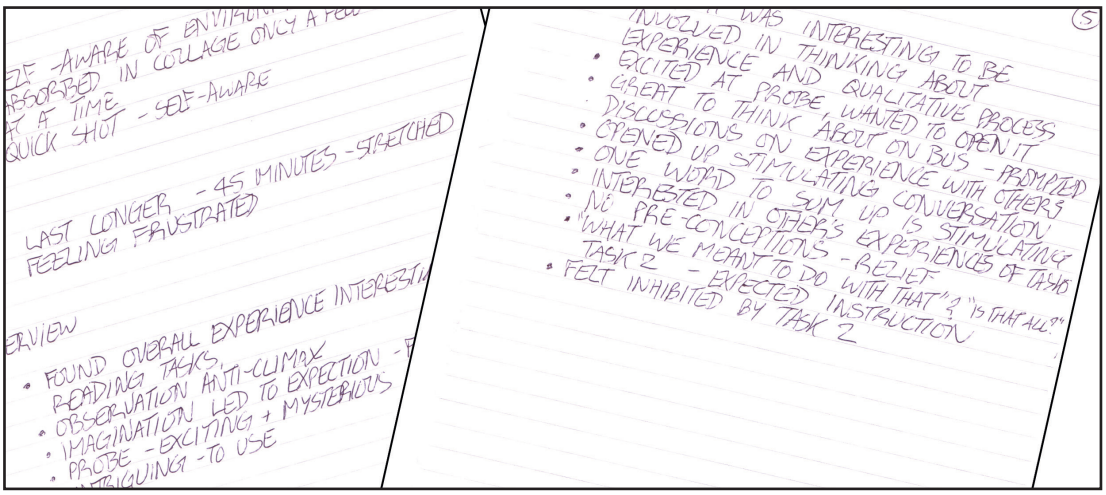

Fig. 5.1: Internal | External 2010 participant comments a) User C, and b) User F.

sensory data. By selecting the best elements in the photographic images from their designer-created image bank that are "ready-to-hand" (Heidegger, 2013a [1929], p98), interaction designers take the visual interpretations from the *iconic* (superficial) to the *indexical* (direct experience), and deeper toward the *symbolic* (general experiential structure). This is why montage is better suited to the task than drawing.

5.8 How the VPM Reflects on Design

While the **VPM** is powered by *hermeneutic-semiosis*, its application by interaction designers retains a very pragmatic practical approach through praxis that reflects on their own design skills. Pragmatism, as McCarthy and Wright state, sees "knowledge as participatory" (2004, p17) so by applying the **VPM** interaction designers facilitate their own phenomenological understanding of the *essence* of the experience. Dourish suggested pragmatically that, "meaning is to be found in the way in which it reveals itself to us as being available for our actions" (2004, p116). So in using the **VPM** to visually communicate to themselves, interaction designers also pragmatically participate in their emergent understanding of what was previously 'hidden' in the user research of what was seen/felt/done.

It was therefore rewarding to read positive peer reviewer comments (see Table 5) that recognised that the **VPM** "reflects on design" (DIS3, 2014, see Appendix E). This peer reviewer also liked how the **VPM** taking into account

Peer Reviewer (see Appendix C)	Positive View of VPM
(JUS1, 2013)	"I applaud the author for 'thinking out of the box' in this respect, and attempting to bring [a different philosophical and conceptual perspective] to the usability and UX community."
(DIS2, 2014)	"There may be something to this work."
(DIS3, 2014)	"I particularly like how this system reflects on design, what people 'thought/felt/did' in the process and how it composes a composite experience."
(DIS4, 2014)	"I want to state upfront that the author [does] have some intriguing and provocative ideas [that] may offer great potential."

Table 5: Positive Inter-disciplinary Peer Reviewer Statements.

"what people 'saw/felt/did' in the process and how it composes a composite experience" (*ibid.*). This peer recognition was an important indicator that interaction designers using the VMP's method cards, could follow its step-by-step process in order to facilitate their understanding of a lived experience, as part of the designers' existing creative process. This peer view was strengthened within the workshops where it was gratifying to see interaction designers engaging with each step of **VPM**. In creating their own visual interpretations, the designer-interpreters gained a different *perspective of proximity* to the users' lived experiences, which they would need to design solutions for.

The method cards made the **VPM** accessible to the designers. This meant that the interaction designers understanding of what users' see/feel/do in a lived experience emerges through an extension of their existing praxis. With the method cards, designers can quickly montage visual interpretations[13] with a minimum of theoretical knowledge. In doing so, *Visual Communication* demonstrates that it can facilitate the understanding of a lived experience, causing the interaction designers who use the **VPM** to change their design behaviour when designing future interaction designs.

13 The optimum time limits on each step of the VPM were not set by the practical projects. The act of visual interpretation shouldn't be a Herculean task of many man-hours, as a practical application in the real world would not allow such a luxury.

This present chapter has discussed critical incidents raised from within the Internal / External 2010, The Dynamic Sinsign Project, and The Circle of Visual Interpretation projects. These critical incidents opened up a discussion on how the **VPM** *works, and how interaction designers have engaged and reacted to it. The first section of this chapter discussed the process of understanding the VPM's underlying theoretical grounds, in the development of its synthesised methodology.*

The next couple of sections then discussed the synthesis of Hermeneutic Phenomenology and Semiosis, which led to the actual development of the new VPM as a methodology. Focus was given on issues of complexity, jargon, theory to praxis, and workshopping the VPM with interaction designers through two iterations of method cards. Finally, the issue of how Visual Communication is inherent throughout this entire process was investigated. The penultimate chapter of this PhD will focus on the fully completed VPM, in order to conclude this thesis. So to end this discussion on developing the VPM, the projects would not have been as productive without the author seeking from interaction designers, peer reviews of the theory, and the workshopping of the method cards.

Chapter 6: A Visual Phenomenological Methodology

So far, the research journey the reader has been taken on has been from problem, to theory, to concept, to experiments, to prototypes, to testing, and finally to empirical evidence. Now it is important to lay out with clarity exactly how the VPM answers the research question:

> How can a synthesis of visual communication techniques and Hermeneutic Phenomenology, through Peircean Semiosis, successfully reveal user experience to aid interaction designers?

By now, the reader should be convinced that, when seen from a Frascaran perspective,[1] Visual Communication design is much richer than a mere end-of-process-decorationist. Visual Communication lives up to its lineage as a facilitator for behavioural change. It is a discipline that in order to successfully visually communicate meaning, its designers can comfortably move across disciplinary boundaries to do so. So this penultimate chapter will focus on, how the VPM positions Visual Communication as a major influence, over the act of successfully revealing user experience. The engine of the VPM is the visual hermeneutic circle. This is an adaptation of Heidegger's circle of interpretation, which is powered by the underlying interplay between Hermeneutic Phenomenology and Semiosis. This interplay came from a synthesis of visual communication techniques, Hermeneutic Phenomenology and Semiosis. This was named by the author as hermeneutic-semiosis.

Hermeneutic-semiosis can be broken down into two parts (see Fig. 6.1). The hermeneutic phenomenological part of the synthesis explores the behaviour of the user, as close to the users' experience as possible. The Semiosis part visualises the essence of personal experiences (using Dicent

1 That Forlizzi, Lebbon, and Davis also align to.

Sinsigns[2]), and the general invariant structural subface of a lived experience (using Dicent Symbols[3]). This hermeneutic-semiosis is channelled through four interpretive turns of the visual hermeneutic circle, to create visual stimuli from the collected user research sensory data. From these designer-generated visual interpretations of what was saw/felt/done in the lived experience, interaction designer(s) can then ideate their new designs from this visual stimuli.

The process of hermeneutic-semiosis specifically creates specific Visual Communication outcomes, which visually communicate the essence of the lived experience they are designing interactions for. The synthesised process of hermeneutic-semiosis utilises Dicent Sinsigns and Dicent Symbols, two powerful pragmatic semiotic Signs, to create this visual stimuli. The VPM employs a nested hierarchy (see Fig. 6.2) of a visual hermeneutic circle, powered by hermeneutic-semiosis, culminating in a repeatable seven-step delivery method of a set of designer-friendly method cards. This chapter will detail the impact of the VPM, how it is useful to interaction designers, and how it is an original contribution to knowledge. To help put all this into a useful context this chapter will first detail the VPM as a methodology, before exploring the underlying (subface) nested hierarchy of the theoretical synthesis that developed it. Finally, the chapter will conclude with detailing the method cards, which help interaction designers to use the VPM.

2 The nature of the *Dicent Sinsign* semiotically communicates direct experience, and it affords the designer-interpreter the framework to *object*ively construct a signifier for the *Object* in each experiential moment, to make the best possible visual interpretation of what the person actually saw/felt/did.

3 A *Dicent Symbol* is a higher-level *symbolic* Sign, that in an interpretation its *Representamen* physically represents what it is signifying through *Dicent Symbol*'s use of conventional ideas that relate to its *Object* through an interpretation as "an association of common ideas" (Thellefsen, N.D.) that have been agreed to mean what they mean.

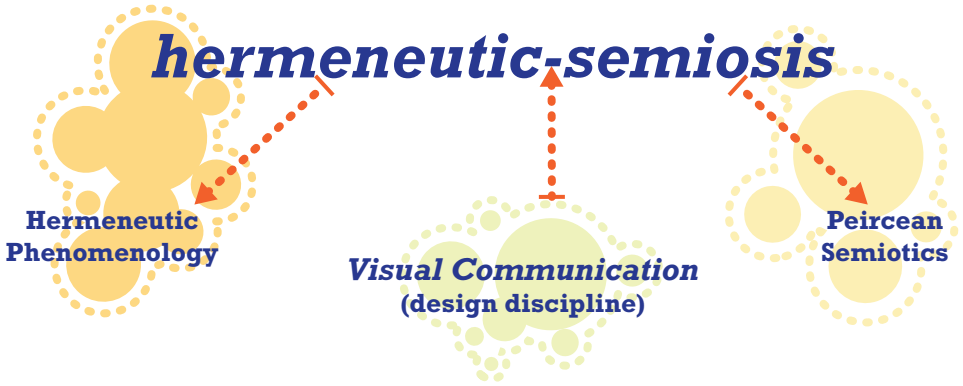

Fig. 6.1: How the term hermeneutic-semiosis is constructed

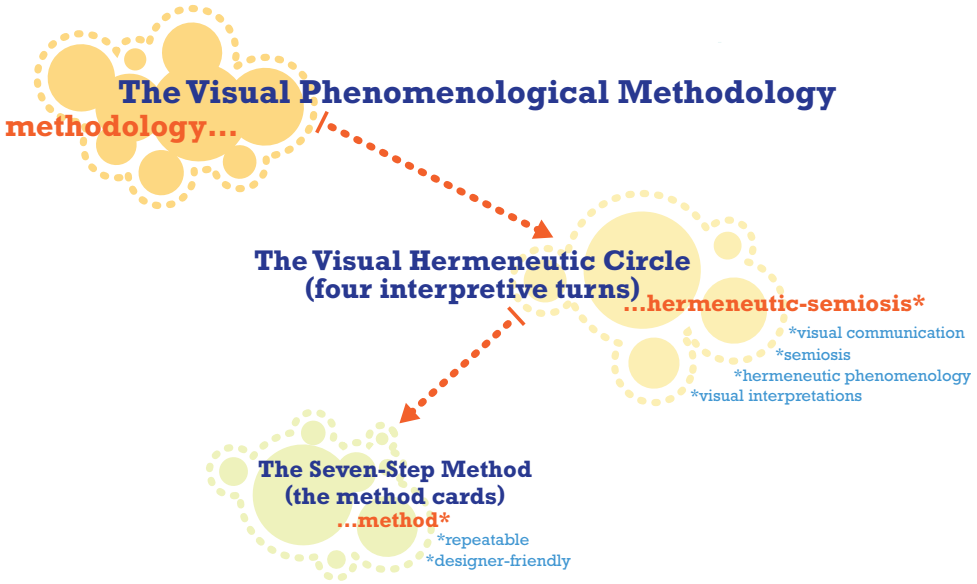

Fig. 6.2: The nested hierarchy of the VPM from methodology to delivery method.

6.1 Creating the VPM as a Methodology

The research question was set in order to explore one way that *Visual Communication* could be reintroduced as an influence on Interaction Design. The intention was to seek a fresh way, beyond the narrow perception of *Visual Communication* as 'just doing the aesthetic bit at the end of the design phase.' Some in Interaction Design call this 'skinning,' and others designate it as the 'visual design.'[4] The position the author takes on *Visual Communication* (which

4 This misapplied term is not a design discipline, nor a description, but a tautology.

graphic design and illustration are aspects of) follows Frascara's views (2004). He argues that *Visual Communication*, as a discipline, facilitates behavioural changes in ***The Receivers*** through its design outcomes. This position meant that the act of visual communicating through the manipulation of type and image, focused ***The Receivers*** to interpret the communicated meaning through visual means, in order to change some aspect of their behavioural response.

Visual Communication designers create discourse and emotional engagement with the designed outcome, and the behavioural change in ***The Receiver*** is facilitated using a semiotic process. This includes visual communication techniques of combining hierarchy, layout, colour, form, texture, line, weight and composition (de Soto, 2013; Hagen and Golombisky, 2013; Ward, 2012; Elam, 2011) in the resulting graphic outcome. Once this outcome is interpreted by the audience, an action of some sort results. This action could be physical (go and buy something that the graphic outcome communicates the audience member may need), or cognitive (they see an issue in a new way and change their perspective of it) facilitating a behavioural change in The Receiver. This is carefully orchestrated by the designer using a visual vocabulary "of simple form, specific function, and *symbolic* content." This in turn plays with "rhythm, contrast, balance, proportion, repetition, harmony, and scale," to visually communicate (Helfand, 2001, p142) the intended message to its intended audience.

To open up the debate, as to what *Visual Communication* design can offer to interaction designers (beyond a general view that has been revealed in the literature to date), lay much earlier in the designers' ideation phases. To show the relevance of the qualitative position that *Visual Communication* occupies, to renew it as an influence on Interaction Design, led first to seek bridges with HCI. The movement within HCI, over the last ten years, has moved towards a qualitative position. Two important areas that the **VPM** utilised are HCI's embracement of aesthetics through *aesthetics of interaction* research, and the third paradigm that Harrison *et al.* (2007) described,

which views understanding interaction as phenomenologically situated. Alongside this paradigm, Petersen *et al.* (2004) described aesthetics as the fifth of five styles of interaction. This helped break the *aesthetics of interaction* down into three aspects, which are: *socio-cultural*, *mind and body*, and *instrumentality* (2004, p270).

These three aspects meant that HCI had begun to understand the 'user' from a qualitative perspective of being an "improvisator." Aesthetics as an interactive style could be framed as an "ideal," which utilised intrigue through the aesthetic, to facilitate action and reward. This paradigm move towards the qualitative and aesthetic and focuses HCI not only on the visual, but also on the feeling of being involved in the interaction, and losing a sense of *self* while engaged.[5] This move allowed a theoretical and practical bridge to HCI from *Visual Communication*, in order to strengthen a fresh influence on Interaction Design. HCI remains a strong influence over Interaction Design, but in creating the Visual Phenomenological Methodology, *Visual Communication* can be influential in a new pragmatic way to interaction designers. With *Visual Communication* as a facilitator, interaction designers can use visual interpretations to reveal their own understanding of a lived experience, based on what was experienced. The main outcome of the **VPM** is not a written description of a lived experience (as in traditional phenomenological research), but in creating visual stimuli in the form of montaged visualisations to make sense of what was experienced.

To understand how this works in practice, it is useful to draw on the car metaphor again to explain the **VPM**. Its "destination" is to visually reveal, from the user research, fresh understanding of what the user actually saw/felt/did, to aid the improvement of future interaction designs. This is within a single lived experience, in a given situation, and visually reveals what they experienced rather than what they say they did. To get to this destination, the **VPM** (as the metaphorical car) transports the interaction designers to it. The

5 This is a very philosophically pragmatic sense of involvement, one that Csikszentimihalyi describes as a sense of FLOW in his *phenomenology of enjoyment* (1990).

form this metaphorical car takes in practice is a set of method cards. The **VPM** has an "engine" that moves the interaction designer to the desired destination of understanding. This is the *visual hermeneutic circle* that helps to propel the visual interpretation towards a conclusion, through four interpretive turns (see Fig. 6.3). The complex system of "moving parts" in this "engine" is the underlying *hermeneutic-semiosis*, as synthesis of Hermeneutic Phenomenology and Semiosis. Within the *visual hermeneutic circle*, *hermeneutic-semiosis*' theoretical twists and turns propels the interaction designer toward visually interpreted understanding. In Fig. 6.2 above, these relationships between the **VPM**'s "engine" and its "power" can be seen in relation to each other.

The synthesis between Hermeneutic Phenomenology and Semiosis in *hermeneutic-semiosis*, was 'glued together' by Pragmatism, in particular the work of Dewey (whose work has historically been influential to both *Visual Communication* and HCI). Moholy-Nagy,[6] a progenitor (and early educator) of what would become the *Visual Communication* discipline, was heavily influenced by Dewey's work. Moholy-Nagy was an example of *Visual Communication* design moving "freely across the boundaries" (Poynor, 2004, p27), and in his New Bauhaus School he implemented a new pragmatic pedagogy to educate the *Visual Communication* designers of the future.

Moholy-Nagy believed that a pragmatic, process-orientated design education, would lead "engaged" designers to "an inner transformation, to a conversion"(Findelli, 1990, p15) where a designer's understanding (generated from praxis) is emergent. *Visual Communication* designers' personal interpretation of what is learnt from designing as an act of experiential problem-solving, is embodied within the practicalities of the experience of *Being-there* within the process of designing. As they attempt to transmit the intended message, by ensuring effective communication at a semiotic level, the designers through praxis, begin to understand how to shape the visual communication message to ensure it communicates an action of some kind.

6 A modernist artist and designer from the Bauhaus movement in Weimar Germany in the 1930s, Moholy-Nagy immigrated to the US as a result of the rise of Nazism and set up the New Bauhaus School in Chicago in 1937.

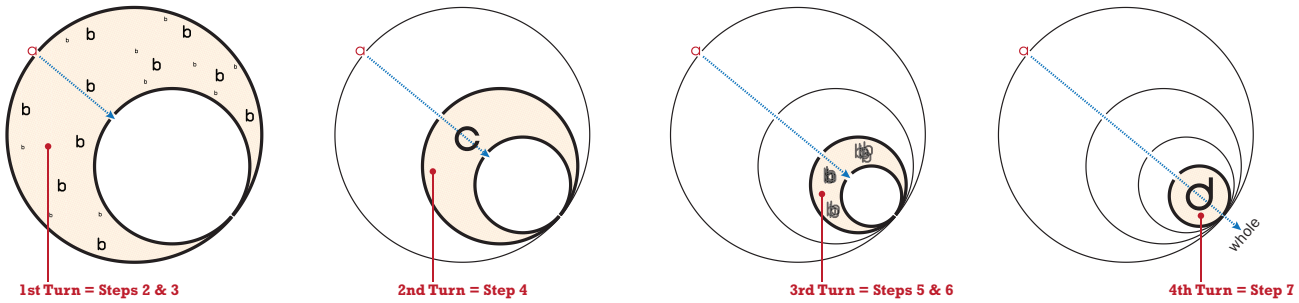

Fig. 6.3: The four interpretive turns in the visual hermeneutic circle.
KEY: a = lived experience, b = experiential moments, c = whole experience, bbb = clustered themes, d = whole experience's context and horizon.

This pragmatic concept of a designer's "inner transformation" championed by Moholy-Nagy, was reinforced by Csikszentimihalyi's research on FLOW (1990), and from taking an existential, phenomenological position of *Being-in-the-world* influenced by Heidegger (2013a [1927], p27).

Although the **VPM** was heavily phenomenologically-based, it still needed a pragmatic and practical element to fully develop it into a methodology, for revealing the *essence* of a lived experience. A framework that influenced its adaptation into a visual research methodology came from academic Nursing literature. Nursing was very practice-based in its research approach, and it documented good practical implementation of hermeneutic methodologies. The two seminal sources were van Manen (1990) and Moustakas' (1994), who both researched lived experiences using phenomenological methodologies. The **VPM**'s phenomenological structure synthesised Moustakas' existing eidetic form of the practice-based methodology, into a hermeneutic form taken from van Manen. It applied itself, within a pragmatic ground that placed the interaction designer when using the **VPM**, into a position of personal embodiment in relation to developing their own understanding.

By following a *circle* of interpretive investigation using two of Pierce's semiotic signs (a *Dicent Sinsign* and a *Dicent Symbol*) to form the visual interpretations, the creation of understanding of the user behaviour within a lived experience, was ultimately revealed to interaction designers by engaging in a proactive act of doing. The designers through praxis (guided by the *hermeneutic-semiosis*), by using the method cards and the designer's existing

skills to interrogate their user research, can arrive at new knowledge of a lived experience.

6.2 The VPM's Engine and Power Source

In the **VPM**, the compound term *hermeneutic-semiosis* demonstrates the synthesis between two philosophical methodologies, together with a design discipline. In Fig. 6.1, the three parts to the term are equally important. The first and last parts of the term clearly relate to the two philosophical grounds, while the hyphen is *symbolic* of the design discipline of *Visual Communication* that bridges them. This synthesis exists in two active stages and is managed across seven practical steps. The sensory data is analysed first through qualitative techniques, structured by Hermeneutic Phenomenology, before the meaning is visually revealed through making visual interpretations. This second part is structured by employing Semiosis to create montaged images, of individual experiential moments and then general *themes*. How this *hermeneutic-semiosis* functions, in a repeatable way, is dictated by the application of a *visual hermeneutic circle*. This section will detail how the **VPM** works, and how it was improved from workshopping it with interaction designer, before concluding this thesis.

6.2.1 The Visual Hermeneutic Circle

So now that the working parts of the **VPM** have been clarified, it is important to examine the 'engine' itself. A *hermeneutic circle* is a philosophical interpretive tool that structures the act of interpreting, through constant examination of the *parts* and *whole* experience. Ihde describes the purpose of this as a "dialectic of interpretation [which] generates a distance between the [self-evident] and the observational," which is focussed on the 'things themselves' that he sees as "the phenomena present to experience" (Ihde, 2012, p17). This is repeated until an understanding of what was revealed is arrived at. The pros and cons of this philosophical tool have been reviewed in Chapter 2, so now it is important to examine how the *visual hermeneutic circle* works.

As the engine of the **VPM**, the *visual hermeneutic circle* generates visual outcomes (which are designer-created visual stimuli), using visual language that the designers constructs.[7] In traditional applications of a *hermeneutic circle*, to make interpretations in order to gain understanding, there are many twists and turns between examining the experiential *parts*, and the *whole* experience. In a *visual hermeneutic circle*, these turns are made across seven steps (see Fig. 6.4), by utilising either a *Dicent Sinsign* or a *Dicent Symbol* as montaged interpretations. This create images rich in information as to what people saw, felt, and did in the experience. This is why the *circle* tool, like the *Experience Probe*, has been given a specific new title in order to emphasise the distinct difference that the output's form takes.

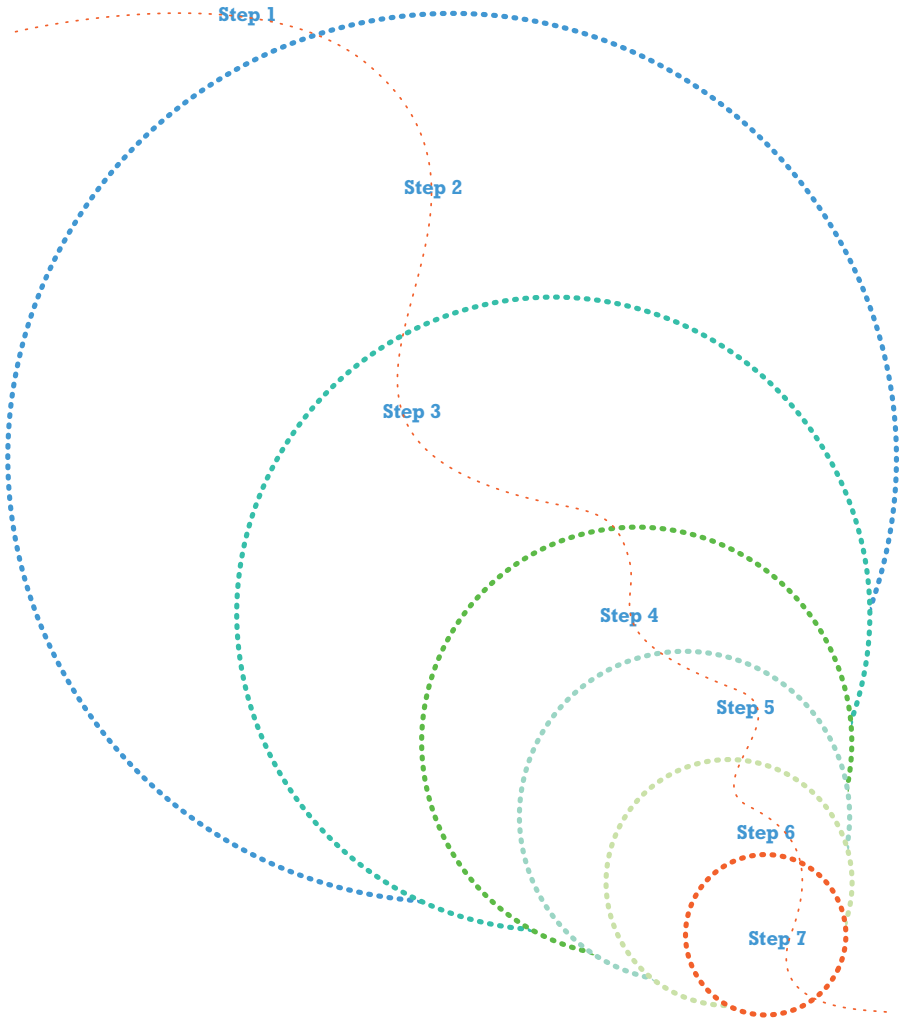

Fig. 6.4 By expanding the existing diagram of the VPM, it is possible now to see the spiralling toward an understanding of a lived experience, across the seven steps.

7 As the visual outcomes only have to understood by those designers and not universally by third parties.

6.2.2 The Four Interpretive Turns and Seven VPM Steps

The **VPM** has a philosophically intricate mechanism for visually revealing the *essence* of a lived experience (represented as 'a' in Fig. 6.3). In order for the author to develop the **VPM**, typographical images where created to diagram what happens during its use (see Appendix A, pp48-51). These diagrams helped communicate the flip-flopping between interpreting between the *parts* of, and the *whole* lived experience. The four interpretive turns in the **VPM**'s *visual hermeneutic circle* propel an interaction designer through the methodology, toward gaining insight and understanding. These four turns are clearly represented in Fig. 6.3, with each turn highlighted. Within each turn, the relevant seven steps of the method cards are appended to the relevant turn.

1st Interpretive Turn and Steps 2-3

Step one was preparatory work, and came before applying a *visual hermeneutic circle* to the collected sensory data. Therefore Step 1 is outside the *visual hermeneutic circle*, whereas Steps 2-3 all took place in the larger circular area of the diagram, which visually interpreted individual experiential moments (represented as 'b' in Fig. 6.3). These where the *parts* of the lived experience. The largeness of this circle reflected the potentially large amount of work (depending upon the number of participants' sensory data), which the designer-interpreter would need to process during the 1st interpretive turn. Each of the visual interpretations of individual experiential moments are of direct experiences, which make up the *whole* lived experience.

By utilising Peirce's fourth semiotic Sign, the *Dicent Sinsign* (a Sign of direct experience), each moment is visually communicated as a single image during Step 2. Any understanding at this stage will not yet be cohesive, but fragmentary. By its nature the individual visual interpretations are only glimpses of what was experienced. Through visually interpreting them, what is fleeting and transient becomes visually represented in a single, permanent image through employing Step 2 of the **VPM**. This interpreted representation of an experiential moment is achieved by the inter-relationship within the synthesised *hermeneutic-semiosis* (which powers the **VPM**). So that the interaction designer(s) can visualise each single *part* of a *whole* lived experience, Step 2 makes the complex task of representing a moment possible by phenomenologically revealing each experiential moment. This is in turn translated visually by using the structure of a specific semiotic Sign (indicated in Fig. 6.5).

If the interactive designer(s) leaves the **VPM** at that point, then the 1st interpretive turn of the *visual hermeneutic circle* is incomplete. Step 3 of the **VPM** guides the designer-interpreter to visually interpr*et* all of an individual's identified moments, and then repeat for every individual participant in the sensory data sample. Once completed, then each comprehensive set of all the possible visual interpretations of every user's individual experiential moments can be compiled into a single experiential sequential storyboards. At this point the 1st interpretive turn of the *visual hermeneutic circle* is complete.

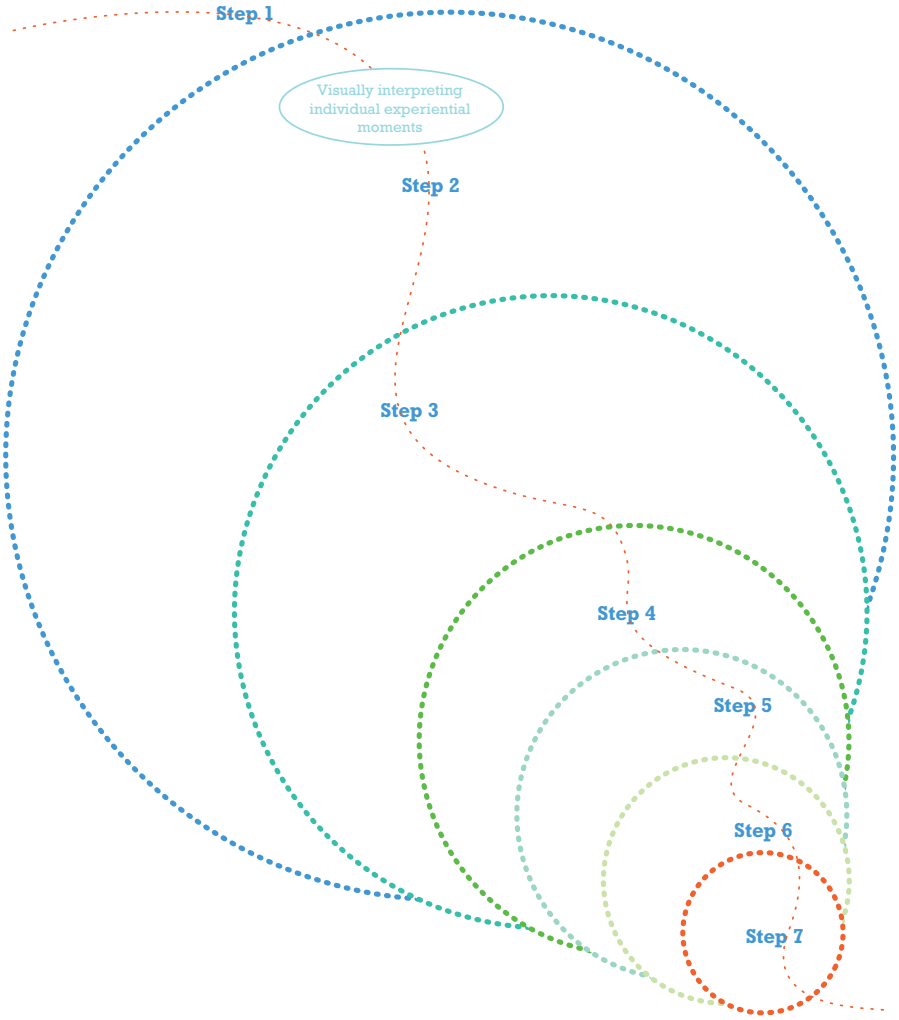

Fig. 6.5 Hermeneutic-semiosis at work during Step 2.

2nd Interpretive Turn and Step 4

This 2nd interpretive turn in the *visual hermeneutic circle* is a comparative step, to see which experiential moments are shared across each individuals' lived experience. This comparative step is indicated in Fig. 6.3 by a single 'c' and in Fig. 6.6. If more than one participant shares the same moment, then that moment is classed as *invariant*. But if an experiential moment is idiosyncratic, then it cannot be *invariant* and so will be discarded at the next interpretive turn of the *circle*.

In order to identify *invariant* moments Step 4 places each individual's visually interpreted experiential moments into a sequential order, defined by when the moments happened as revealed in the sensory data. When placed in this order they form a storyboard of visual interpretations, showing each individual's lived experience as documented in the sensory data. In doing so, the *parts* of the lived experience can be examined in the context of the *whole* experience, while remaining as "close to the original text" (Plager, 1994, p80) as possible. In such an experiential sequential storyboard, it becomes possible to compare one individual's experience of the lived experience with others who shared the same experience of what was seen, felt and done. Once these individual experiential sequential storyboards are compared, and *invariant* moments are found, then the third turn of the *circle* is enacted. This step is again powered by *hermeneutic-semiosis* as the *Dicent Sinsign*s now placed sequentially, in each storyboard,

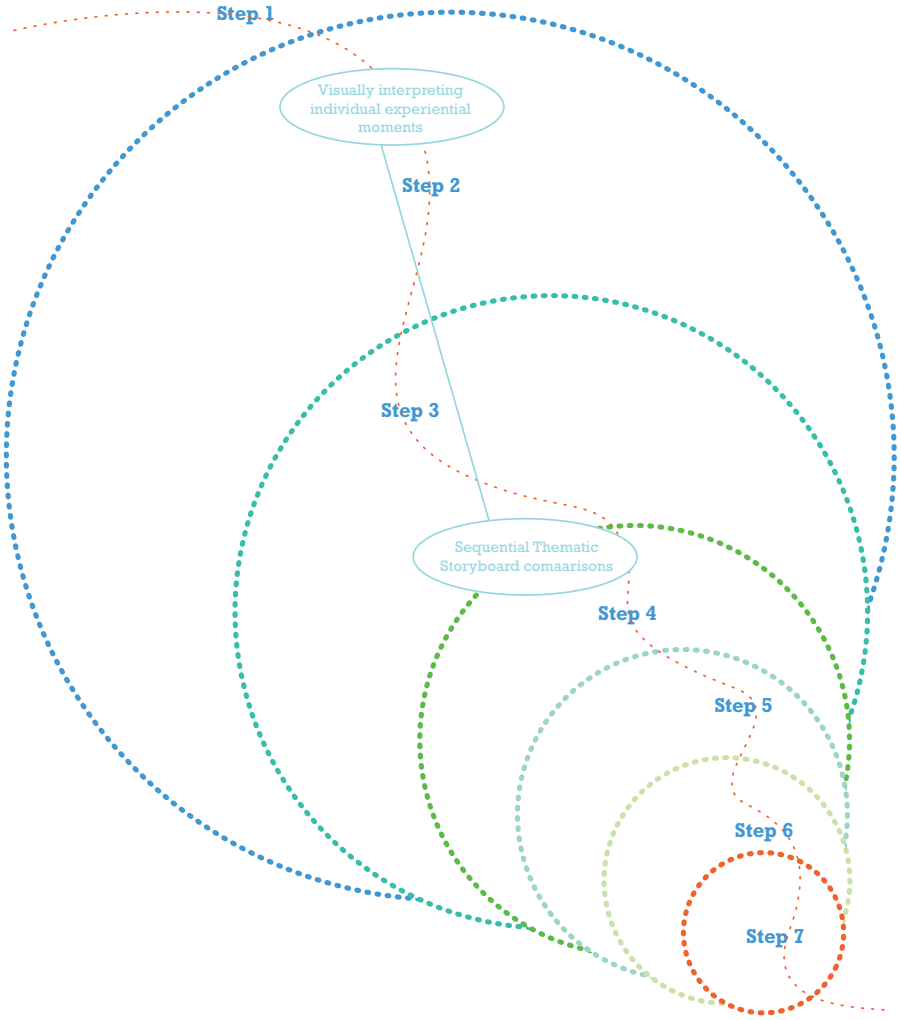

Fig. 6.6 Where hermeneutic-semiosis is at work during Steps 3-4.

are examined using a hermeneutic technique, simplified through the use of a method card (see Fig. 6.6).

3rd Interpretive Turn and Steps 5-6

This 3rd interpretive turn, as can be seen from Fig. 6.3, is a compounding of the sensory data to reveal the general *essence* of the lived experience. To begin to understand a lived experience on a general level, what was experientially *invariant* must be examined (indicated by the clustered 'b's' in Fig. 6.3). This examination involves a process of clustering and further visual interpretation, to reveal the structural building blocks of what is generally experienced. Moving through the *visual hermeneutic circle*, from the visual interpretation of the individual to the general experience, the matching of *invariant* moments from Step 4 reveals experiential shared *themes* that make up the lived experience. These *themes* emerge from this comparative process, and in Step 5 the entire set of individual moments (which are *Dicent Sinsign*s) are clustered into distinct *themes*. This begins the process to reveal the general structure of the lived experience, and is made possible by the *hermeneutic-semiosis* powering the **VPM** (see Fig. 6.7). Only those moments from the sensory data that do not vary from individual to individual, form the general experiential *themes*. Those moments that are too individualistic are discarded at this stage.

Once done, at Step 6, the *invariant themes* that remain are then visually interpreted into single images, to develop an understanding

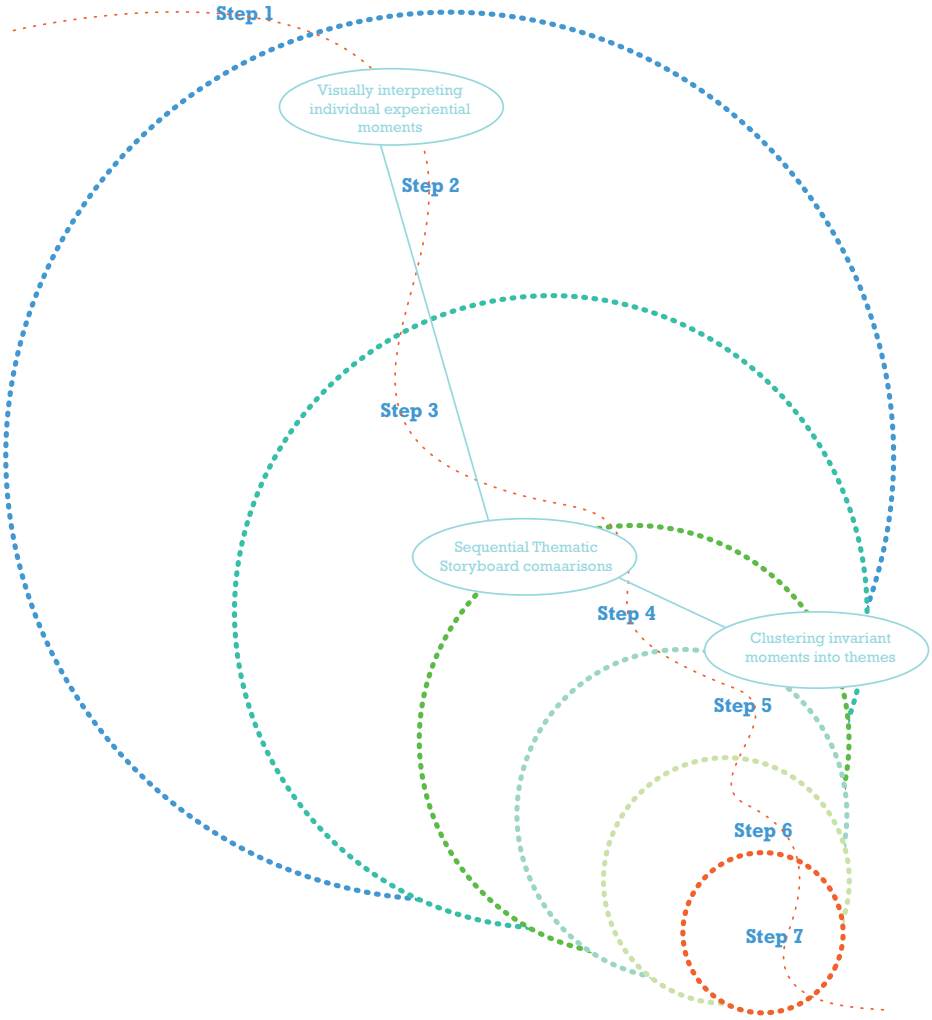

Fig. 6.7 The hermeneutic-semiosis working at a general level of visual interpretation at Step 5.

of the experiential building blocks that form the structure of the *whole* lived experience. This step strips away any sense of the personal from the visual interpretations, to begin to reveal the general structure of the lived experience. To ensure that these more general visual interpretations remain phenomenologically true to the testimony of the individuals' sensory data, this data is constantly cross-referenced to during this step. If there is no evidence in the data record then it doesn't feature in the visually interpreted *theme*. This helps to avoid skewing the interpretations with personal bias. That way the designer-interpreter can ensure they are remaining true[8] to a hermeneutic phenomenological research path, while engaged in the process of Semiosis.

To move the visual interpretations from the individual moment to a general shared *theme*, Peirce's ninth semiotic Sign, the *Dicent Symbol* is utilised. As a higher-level Sign, a *Dicent Symbol* operates on a *symbolic*,

8 The crux of the matter here is that there has to be a balance between any visual interpretation AND the original experience in the user research it is visually interpreting. If there is too great a difference between what was qualitatively coded as having happened and how it was visually communicated, due to inappropriate decisions, then that could bias the phenomenological outcome. When an interpreter makes an interpretation they first are trying to match what they sense with what they already know (Hirsch, 1967 p122). This is because to understand something new we can't help "comparing it to something we already know" (Palmer, 1969, p87). Otherwise there is real a risk of decontextualising the visual interpretation from the original testimony due to the designer-interpreter's subjective bias in un-calibrated image creation.

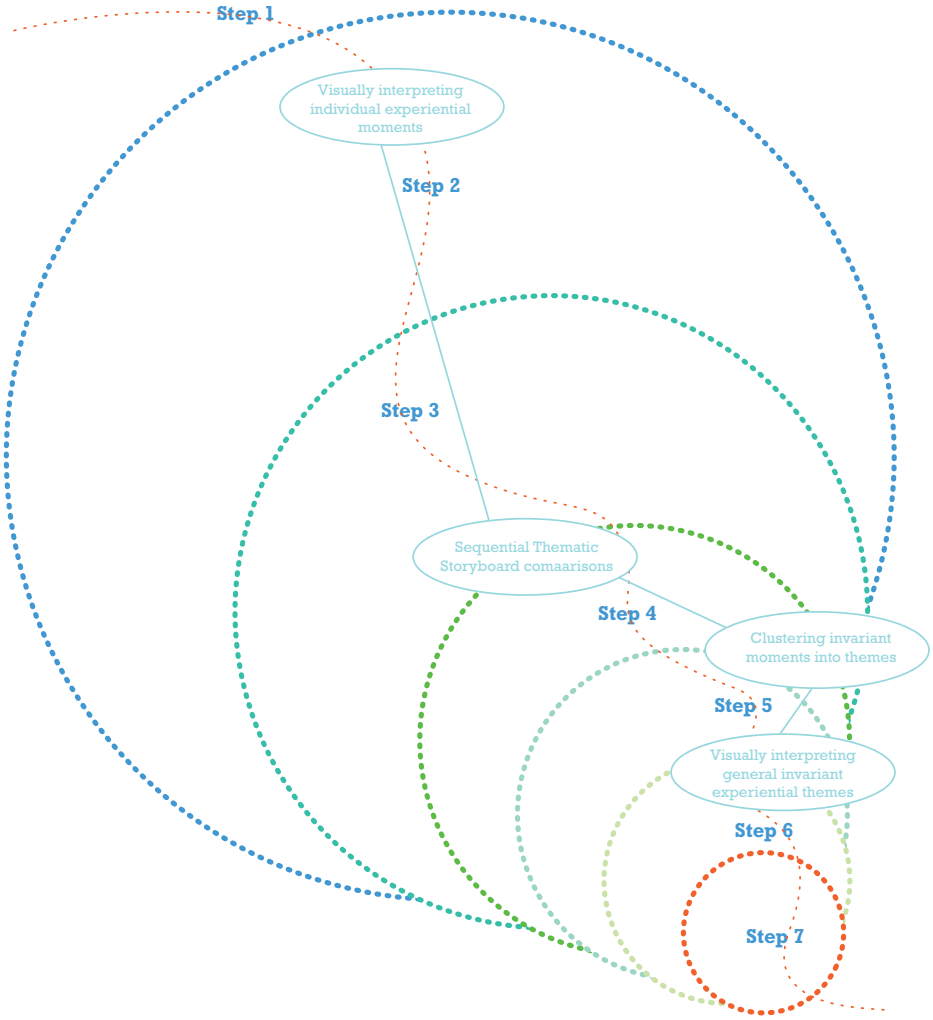

Fig. 6.8 The hermeneutic-semiosis working at a general level of visual interpretation at Step 6.

rather than an *indexical* point of representation.[9] This means that careful attention must be made to selecting the visual language,[10] in order to effectively visually interpret each *theme*, as to what was generally seen, felt and done in that *theme*. By refining this collective language into a general visual language, it can be used to visually communicate the general *essence* of the *whole* lived experience.

The 3rd interpretive turn of the *circle*, takes the designer-interpreter deeper beyond what was experienced to how it is experienced. The *themes* that emerge from the clustering phase of Step 5 are no longer one-off propositions (i.e. *Dicent Sinsign*s) of a single experiential moment. Although still based on actual events that actually happened, the form the visual interpretation now takes at Step 6, operates semiotically using a *legisign* (a general Sign that is a law, and agreed meaning). Therefore the use of a *Dicent Symbol* (or to give it its full name of a *Dicent Symbol*ic *Legisign*) to structure the visual interpretation, visually communicates the agreed message that the image represents one general, but *invariant*, aspect of the *whole* studied lived experience. Each visual interpretation of these general *themes* is carefully structured by this application of *hermeneutic-semiosis* (see Fig. 6.8), and visually communicated by the careful balance

9 The *indexical* nature of the visual interpretation referencing the personal moment in the first turn of the *visual hermeneutic circle* of interpretation (*Dicent Sinsign*), transforms within the later turns into a *symbolic* visual interpretation of what was generally agreed to be the *theme* of what was seen, felt, etc., within that experiential moment (*Dicent Symbol*).

10 See Fig. 5.7 for an example of such a common visual language.

of image and text.[11] By understanding each *theme* of the lived experience, interaction designers can begin to make more sense of the general structure of the experience they are designing for. Through creating visual stimuli to help them understand what's happening, this understanding is emergent from the act of visually interpreting. By praxis, the interaction designers can then make more informed design decisions to design improved future interaction designs because they, themselves, have revealed the phenomenological *essence* of what happens.

4th Interpretive Turn and Step 7

The final turn in the *visual hermeneutic circle*, represented in Fig. 6.3 as 'd,' returns the interaction designer's attention from trying to understand the *parts* of a lived experience, to the understanding the *whole* experience. The final stage is an experiential storyboard that presents the visually interpreted experiential *themes* (*Dicent Symbol*s), which are interpreted from the most common behavioural thematic changes, together in one image. Once the thematic images from Step 6 are placed in an order (which signified the common issues that *invariantly* were generally encountered),' a general visually communicated structure of the lived experience is revealed. Through the help of *Visual Communication* through the **VPM**, the interaction designers who will be designing future interactions for the very lived experience they're trying to understand, Step 7 presents a clear insight of the highs and lows of the lived experience.

The sequence of the generally encountered experiential *themes* are sorted into three sections, comprising of 'beginning,' 'engaging,' and 'ending' of the *whole* lived experience. Which *theme* goes where, is visually interpreted by returning to the source sensory data, and the experiential sequential storyboards from Step 4. This phenomenologically ensures an objectivity to the general experiential structure that the **VPM** reveals. It is important to state that as a phenomenological analysis, the designer-interpreter when using the **VPM**, must remember to remain close to the original sensory data and not bias the visual interpretations, with non-revealed elements they have introduced. It is at this final stage that what was generally encountered by all, is visualised as the general *essence* of the studied lived experience, through phenomenological engagement and visual communication techniques using Semiosis.

Within the four interpretive turns of the **VPM**'s *visual hermeneutic circle*, the interaction designers are guided step-by-step to reveal what a general user encounters in a lived experience from the sensory data they provide. The interaction designers understanding of the *essence* of the lived experience, emerges through following the seven steps of the **VPM**. At both an individual experiential moment level, and a general experiential structural level, through the creation of self-interpreted visual stimuli, they gain a fresh level of empathic understanding about their users' motivations. With each successful interpretive turn, the blue dotted arrow in Fig. 6.3 indicates the progress made through the four interpretive turns and the seven steps of the **VPM**. It offers

11 These meanings rely on using the techniques of manipulating image and text.

the interaction designer a fresh perspective on understanding an experience, which they would not have achieved through applying other existing qualitative methods. No time limit can be set on when this clarity of understanding is reached, nor on how long each visual interpretation will take. These are variables, dependent upon the individual designer-interpreters' schedule and requirements.

6.3 The Method Cards

To argue successfully that *Visual Communication* can re-influence Interaction Design through the **VPM**, would always rest on how interaction designers would get to use the methodology. The delivery method of the **VPM** emerged from the practical project experimentations, as a seven-step delivery method in the form of a set of method cards. These method cards helped to minimise the time taken by interaction designers to quickly engage in using the **VPM**. So before examining the **VPM's** impact with interaction designers, it is important to quickly summarise the rationale for choosing these cards to communicate the **VPM** to interaction designers.

The **VPM** had to be both accessible and feasible, so that interaction designers, wanting to understand any lived experience that they had to design for, could understand and use the **VPM's** application quickly. Therefore its delivery method within the constraints of a visual hermeneutic phenomenological inquiry, had to be one that was universally repeatable. The development of the **VPM** from the Moustakas/van Kaam model always had suggested itself as a seven-step method.

The original model was adapted into a practical method through guidance from van Manen's book (1990) and peer reviews. It became clearer, after this adaptation, how the seven-step method mapped to the interpretive turns of the *visual hermeneutic circle*. By limiting the turns of the interpretive *circle* to only four revolutions (*parts*, *whole*, *parts*, *whole*), a manageable method for any interaction designer to follow was achieved.

The four turns of the *visual hermeneutic circle* also took two major acts

of interpretation (see Fig. 6.9). The first two turns focused on the individual experiential moments, and the final two turns focused on the general structure of the lived experience. This important split in the **VPM** between understanding the personal and then the general, meant that interaction designers had a flexibility to decide on how much of the **VPM** they wanted

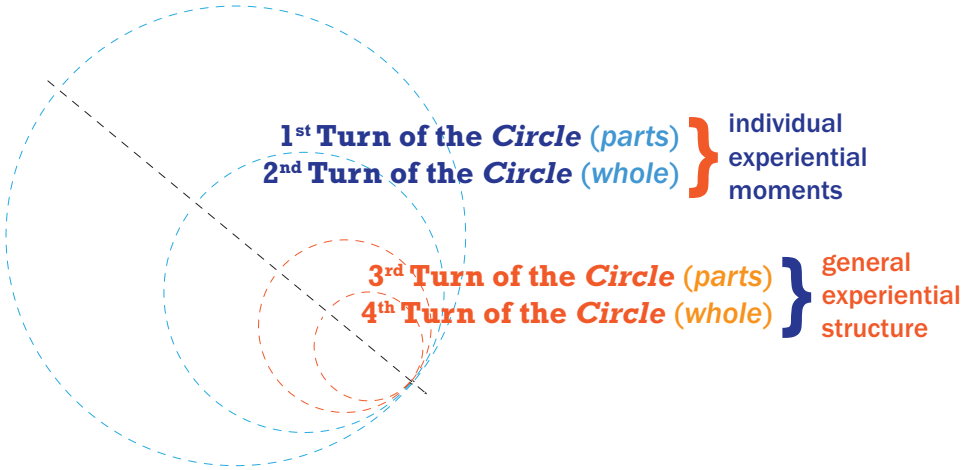

Fig. 6.9 The relationship between the hermeneutic circle, hermeneutic-semiosis, and the three PhD projects.

to use. Depending on the time available to them, the resources they have, and the questions they want to ask, they could use the **VPM** simply to study only individual experiences. Or the designers could go deeper into the general experience structure.

If they only needed an understanding of the lived experience at a superficial level, then two turns of the interpretive *circle*, and four steps using *Dicent Sinsign*s, would provide the designers with fresh, but limited information from these visual interpretations. But by continuing to the end of Step 7, they would gain more understanding of the phenomenological *essence* of the *whole* lived experience. This flexibility was made possible by the adoption of a method card delivery method.

Method cards are an established tool that interaction designers are familiar with. They are easy to access, designer-friendly, and each card can summarise complex methods into small accessible steps. IDEO's own set of method cards are the most well known example of the format in Interaction Design. The

decision to use method cards came from the authors own use of IDEO's cards with his undergraduates.[12] As a result, the author became convinced that out of other possible delivery methods for the **VPM** that other researchers may adopt, the method card format would be beneficial to this PhD research. The method cards that were produced as part of **The Circle of Interpretation** project, each step of the **VPM** was supported by images taken from actual empirical results of using it against the sensory data from Internal | External 2010 (see Fig. 6.10). It is now important to end this current chapter with a statement on the **VPM's** current impact.

6.4 The Impact of the VPM

To end this account of the **VPM** the actual impact of using visual interpretation on sensory data by interaction designers will be discussed. The purpose of the **VPM** for interaction designers (separately or in design teams), to use visual interpretations to create for themselves a deeper understanding of their own user research. By employing a methodology that synthesises Hermeneutic Phenomenology with Semiosis, the designers used the **VPM** to reveal the *essence* of a specific lived experience. In doing so they, through praxis they empathically reveal first-hand the motivative factors involved within such an experience which is based upon actual interaction designer feedback gained during the practical projects. The immediate impact of the **VPM** has been positive. Peer reviewers throughout its development have commented that:

> "I applaud the author for 'thinking out of the box' in this respect, and attempting to bring [a different philosophical and conceptual perspective] to the usability and UX community" (JUS1, 2013, see Appendix E).
>
> "There may be something to this work" (DIS2, 2014, see Appendix E).
>
> "I particularly like how this system reflects on design, what people 'thought/felt/did' in the process and how it composes a composite experience" (DIS3, 2014, see Appendix E).
>
> "I want to state upfront that the author [does] have some intriguing and provocative ideas [that] may offer great potential" (DIS4, 2014, see Appendix E).

Although the written feedback from interaction designers at the two

12 This was at Glasgow Caledonian University, in a module called *Design and the User*.

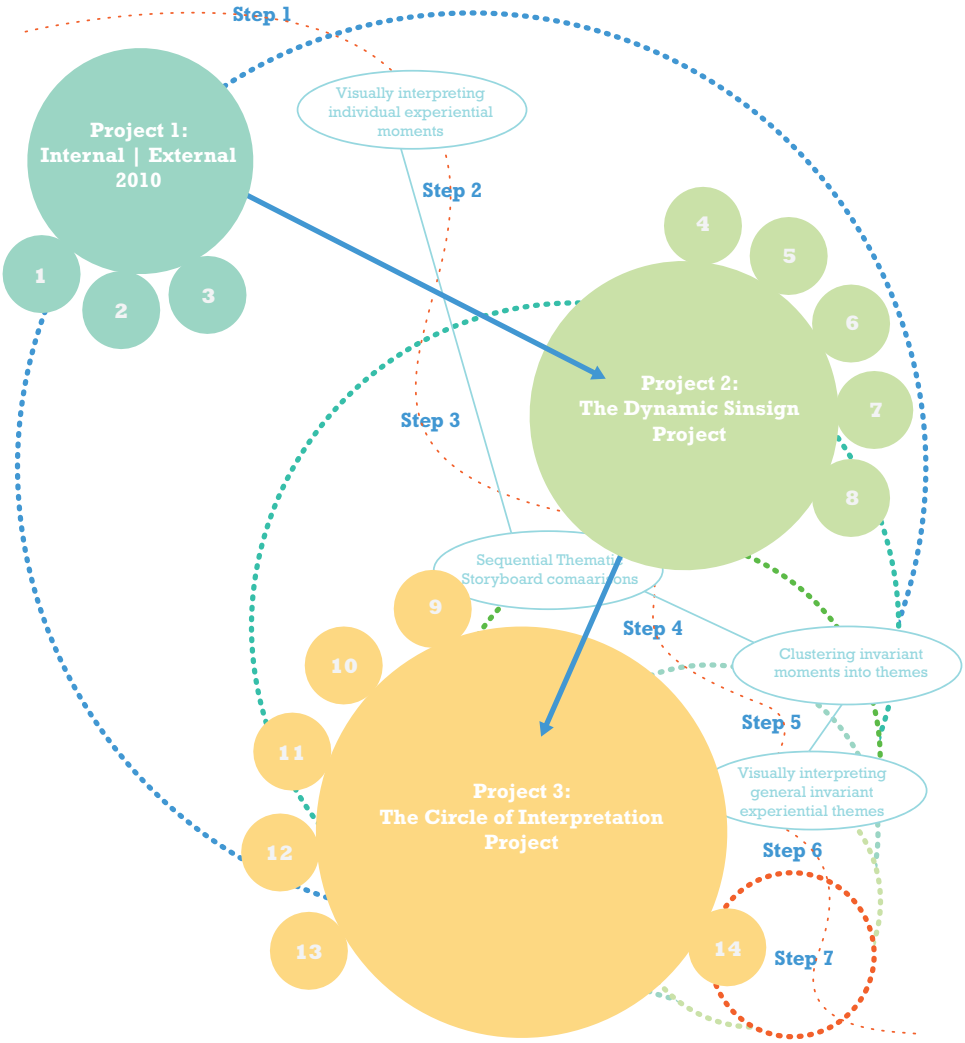

Fig. 6.10: The VPM delivered as a flexible method to suit interaction designers' available time and needs. 1-3 are the visual communication outcomes from the 1st project [see Section 3.1.3]. 4-8 are the visual communication outcomes from the 2nd project [see Section 3.2.3]. 9-14 are the visual communication outcomes from the 3rd project [see Section 3.3.3].

workshops was not as plentiful as face-to-face discussions, it did indicate a positive reception to the **VPM**. Two interaction designers who did find time to leave written feedback stated:

> "It's a useful tool to show ideas about the problem" (WSP4, 2014, see Appendix E).

> "While [I] joined in your workshop [it] felt very exciting and [I had a] useful experience." (Inobori, 2014, see Appendix E).

In general, therefore on anecdotal feedback alone, the **VPM** does have grounds as originally desired to become influential, to the ideation phase of Interaction Design. This PhD has asked the question…

> How can a synthesis of visual communication techniques and Hermeneutic Phenomenology, through Peircean Semiosis, successfully reveal user experience to aid interaction designers?

…so initially, those sampled participants from the three projects, plus the interaction designers from the workshops, indicated a potential positive impact to the **VPM**. As one interaction designer, after being asked which of the seven steps they would find most useful to their own ideation phase, commented "all of them" (WSP2, 2014, see Appendix E).

This penultimate chapter has answered the important points that the research question asks. The VPM has been explained through its purpose and through its design. The four interpretive turns of the visual hermeneutic circle, have been outlined. To this the VPM's seven steps were mapped against these four turns. These seven steps are what are featured on the method cards, which make the VPM's delivery more designer-friendly. Added to this mapping was a further application of information, in the form of where the VPM's power source of the hermeneutic-semiosis made its presence felt. Against this backdrop, finally the three practical projects of this PhD can be seen. These three projects are interlinked and performed two major roles.

Their first role was to generate sensory data to analyse using the VPM. This was achieved in Internal / External 2010. The second, and most important role, was to actually experiment with creating the VPM itself. Out of these experiments across The Dynamic Sinsign Project and The Circle of Visual Interpretation project the VPM emerged, and so did its delivery method to of a set of method cards. The final project ran two workshops to test two iterations of the cards with interaction designers. The next chapter will conclude this PhD, and it will stress how Visual Communication has been repositioned through the VPM as a fresh influence over Interaction Design, how it creates an original contribution to knowledge.

Chapter 7: Conclusion

The name of the methodology that this PhD created to answer the research question, which synthesised Phenomenology, Pragmatism, Semiosis and Visual Communication, was termed a Visual Phenomenological Methodology (or VPM for short). This final chapter will conclude the PhD around four main areas. Firstly, a brief restatement of the research aims, will give the reader a clear understanding as to how this thesis answers the investigated research problem. Secondly, a short summary of each chapter in the dissertation will remind the reader of how theoretically and practically the PhD's thesis has been achieved. Thirdly, how this thesis succeeds as an original contribution to knowledge through the VPM will be stressed. Finally, the implications arising from this thesis for future postdoctoral research will be emphasised.

7.1 The Research Problem

This PhD research was undertaken to relocate *Visual Communication* design, as a fresh influence over Interaction Design, much earlier in the latter's design process. It also evaluated how (using the **VPM**), this could be done to aid interaction designers in the design of future interactions. The research question asked how a synthesis of *hermeneutic-semiosis*, through a new methodology (**VPM**) could, by using visual communication techniques, successfully reveal user behaviour. This new methodology phenomenologically reveals fresh insights into user testimony, in a way that cannot be revealed through the use of mental modelling or personas alone. In this investigation, the question focused on developing a fresh way for *Visual Communication* design to re-influence Interaction Design.

In answer to this research question the **VPM** was developed. At an individual level, through sets of individual visual interpretations, the **VPM** first examines the experiential *parts* of a *whole* lived experience. Then going deeper below the subface of the interaction, the **VPM** reveals the general experiential motivations. This structured research methodology takes interaction designers on a deeper journey, to understand the *whole* lived experience (see Fig. 6.10). At this deeper level a general understanding of the *whole* lived experience is made in the form of designer-created, visual stimuli of what users saw/felt/did within it. Through the pragmatic engagement that each interactive designer has with this self-created, visually communicated, inspirational data their understanding of user behaviour emerges.

The **VPM** also readdressed the narrow assumption that Visual Communication is nothing more than 'visual-design-skinning-code-at-the-end-of-the-design-process.' This was achieved through using visual interpretations from a *visual hermeneutic circle* of interpretation. Each visual interpretation was created using the visual communication technique of montage structured by two different semiotic Signs. The fourth semiotic Sign, a *Dicent Sinsign* (a Sign of direct experience) was used, to structure the visual interpretations of individuals' experiential moments. The ninth semiotic Sign, a *Dicent Symbol*, was used to visually interpret the general experiential *themes* to reveal the general structure of a lived experience. By using the **VPM** to examine their own user sensory data, interaction designers would create visual stimuli for themselves, using their own created visual language to do so. of what the users actually saw/felt/did during a particular lived experience (rather than what users say they did). This would inform and influence their future interaction designs for that lived experience.

7.2 Summary of Chapters

In order to develop the **VPM** a broad contextual review of literature was first undertaken in Chapter 2. This review covered areas of theory

and practice that spanned *Visual Communication*, Interaction Design and HCI, Hermeneutic Phenomenology, and Peircean semiotics. It investigated Phenomenology from a Heideggerian perspective (2013a [1929]; 2013b [1919/20]), as it was suggested (from a brief divergence into Nursing academic literature), that a real-world application of Phenomenology into practice-based research, could be achieved. To help *Visual Communication* to begin to re-influence Interaction Design, the pragmatic semiotics of Charles Sanders Peirce (1931-33) was chosen over the structuralist Sausserian semiotic tradition.

To synthesise *hermeneutic-semiosis* into a new designer-friendly methodology using praxis, Pragmatism became the philosophical 'glue.' Peirce's pragmatic semiotics had a strong phenomenological dimension to its structure. The signified meaning of Peirce's ten Signs were dependent upon communication, through three phenomenological states of *Firstness*, *Secondness* and *Thirdness*. From the Interaction Design review an area of research that went below the subface of interactions (Nake, 2008) was developed, and through a passing statement by Jon Kolko (2010), an interaction designer, the concept of user research as sensory data was adopted. This made a valuable link with Gaver (1999) and Mattelmäki (2006), and their separate work on cultural *probes*.

What was crucial to this thesis was the argument within the *Visual Communication* literature from Frascara (2004), Forlizzi and Lebbon (2006), and Davis (2012) for *Visual Communication*, to be seen as a facilitator of behavioural change for the discipline's audience. This placed *Visual Communication* in a proactive role, far removed from the 'visual design' perception, that fails to recognise visual communicators as nothing more than mere decorationists. It was from such a position of behavioural facilitation, that three practical projects sprang.

Chapter 3 detailed these three practical projects, and the *Visual Communication* outcomes from them. The first project, **Internal | External 2010**

focused on developing tools for collecting sensory data, in a phenomenological way. It examined the initial role of how *Visual Communication* could contribute to this qualitative collection, including the design and application of a special *Experience Probe*. Following this, the second practical project **The Dynamic Sinsign Project** examined the first attempt at testing, and shaping the early stages of the embryonic **VPM**. It focused on the first turn in a *visual hermeneutic circle*, by visually interpreting individual experiential moments from sensory data (taken from Task 1 of the *Experience Probe*). This project experimented with using a *Dicent Sinsign* to structure the visual interpretations. It also developed an image bank, from which the photographic sources to select experiential contexts and qualities to montage, could be made.

This investigation demonstrated that a synthesis of Semiosis with Hermeneutic Phenomenology could indeed work to reveal the *essence* of a lived experience. Therefore the third and final practical project then experimented with developing the full **VPM**, and generating from it actual practical empirical results. **The Circle of Visual Interpretation** project concluded Chapter 3 with an exegesis. In it the use of *Dicent Sinsign*s was perfected (first began in **The Dynamic Sinsign Project**). It addressed one single, shared lived experience from the first project, using the results from Task 2 of the *Experience Probe*. This final project went deeper into understanding the lived experience of engaging with an unfamiliar interactive artefact within a gallery environment, by clustering general experiential *themes* from individual moments. These *invariant themes* that reveal the general experiential structure of the lived experience, were visually interpreted using *Dicent Symbol*s in order to structure the montages.

The results of this experimenting was discussed in empirical terms in Chapter 4. The **VPM**, using a seven-step method, was disseminated to interaction designers as a set of method cards. Two iterations of these cards were workshopped, at two different conference workshops during 2014, with two groups of interaction designers. In engaging directly with interaction

designers throughout the **VPM**'s development, the **VPM** had developed from a theoretical proposal to a *Visual Communication* outcome. One of the more significant findings to emerge from this study, is that *Visual Communication* now had a new proximity in relation to Interaction Design, from which to offer a fresh influence on it. How this was possible was discussed at great length in Chapter 5 where, through examining the critical incidents from all three practical projects, this *whole* thesis was carefully critiqued. Finally, this led to the strength of the **VPM** being documented in Chapter 6. In this penultimate chapter, the reader was carefully orientated to understand exactly what the **VPM** was. By understanding what it was, it was then easier to outline how it was an original contribution to knowledge.

7.3 VPM as an Original Contribution to Knowledge

To answer the research question this PhD has explored the interface between the design disciplines of *Visual Communication* and Interaction Design. Once an original source of influence on the design of interactions, *Visual Communication's* influence had waned over Interaction Design, while HCI's had grown. To see how it was possible to reposition *Visual Communication*, in a fresh way as an influence over Interaction Design, much earlier in the design process the research broke new ground. By following the literature into Hermeneutic Phenomenology, Pragmatism, and Peircean Semiosis, a new communicational situation presented itself within which the research question could be answered with an original contribution to knowledge. This communicational situation was both a rich and broad area of inter-disciplinary research. It theoretically created a bold new synthesis using practical experiments, to understand user experience in a visual way, using designers' own natural praxis placing *Visual Communication* at the core of interaction designers understanding the *essence* of a lived experience that they need to design for.

The **VPM** was devised from the ground up, to phenomenologically investigate a lived experience through visual interpretation. Through an adaptation of an existing method (Moustakas' adapted van Kaam method)

with Hermeneutic Phenomenology, the **VPM** began to be possible. By adapting Heidegger's *hermeneutic circle* as a theoretical engine for the **VPM**, it was then achievable to synthesise a phenomenological methodology with a pragmatic semiotic theory. This provided a structure for visually interpreting sensory data to understand a lived experience. By using Peirce's Semiosis to structure the visual interpretations, each experiential moment (individual experience) or *invariant theme* (general experience), meant that the visual communication technique of montage could be used to successfully reveal and understand nuanced user experience.

This synthesis that powered the **VPM**'s *visual hermeneutic circle* was called *hermeneutic-semiosis* by the author. *Hermeneutic-semiosis* was the theoretical and philosophical power source of the **VPM**. Although the **VPM**'s base is in a pre-existing methodology, it was rebuilt from the ground up to produce interpretive (hermeneutic) results, rather than remain merely a descriptive (eidetic) methodology. The addition to the van Kaam methodological base of a visually interpretive outcome, lifted the **VPM** beyond a mere adaptation. It was now a methodology that never had previously existed, that was used to create a number of visual interpretations of real lived experiences from users' sensory data. In this respect, the **VPM** is an original contribution to knowledge that a PhD demands. From the very beginning each theoretical step taken towards this was peer reviewed, and the **VPM** itself was workshopped with real interaction designers. The author found that being published very early on in his PhD[1] (IASDR 2009 proceedings) helped shape his theoretical position, especially in regard to using professional discourse to develop the **VPM**. Now finally some areas for future research that this PhD could inspire will be raised.

7.4 Implications for Further Research

In creating the **VPM** and its delivery through a set of method cards, this research offers one methodology for how *Visual Communication* design can reposition itself, as a fresh influence over Interaction Design. In doing so, by

1 At the time of being published in the proceedings of IASDR 2009 he had just begun a MPhil.

following the Frascaran view that *Visual Communication* acts as a facilitator of behavioural change, this research shows one way for the design discipline to break out from the 'chains of visual design.' Now it is at a point to continue moving across those disciplinary boundaries. This PhD's practice-based research to answer the research question needed a small sample of participants, as the overall aim was to first develop the **VPM** and then to test it with interaction designers. So it needed to be a small, manageable project. Once developed, the **VPM** was applied to a real lived experience of using an unfamiliar touchscreen in a gallery environment. The visual stimuli it generated over the **VPM**'s seven steps, and the subsequent workshopping of the **VPM** with interaction designers, suggested that as a methodology, it would perform if applied to designers' own user research. The author is from the *Visual Communication* discipline, but this dissertation naturally sits across several disciplinary boundaries. So he decided (like his Modernist progenitors) to be flexible in how to approach disseminating the final outcomes.

This PhD was not specifically designed to evaluate factors related to what a social science-type PhD would expect as an empirical outcome and conclusion. That approach did not fit, as this PhD has been focused on a pragmatic revelationary structure where the results are presented *as-is*. From actual practical investigation, the results in both the design of the **VPM** and what it revealed about the *Inspace* lived experience, stands as evidence to how the research question has been answered. As with all good research, it suggests fresh questions to how the **VPM** can be further developed by other researchers. Some readers of this PhD might see areas they would have liked answered in a more definitive way than has been done by the author. The generalisability of the results so far have of course been subject to the parameters set out in this PhD's project aims, as the **VPM** was created to address the specific problem, to reposition *Visual Communication* as a fresh influence over Interaction Design.

Now future researchers are free to design specific projects around the use of the **VPM**, using their own user research and collected sensory data. The

author suggests that further work is needed on applying the **VPM** to 'live' Interaction Design projects [NOTE: At the time of submitting this PhD in January 2016, Dutch agile design agency LAVA Design (lava.nl) emailed the author to say that they are planning to use the *Circle of Visual Interpretation* method cards with their own interaction designers on a live project (Lava Design, 2016)].

Individual designers, or design teams, could develop the method cards to fit their own specific needs. Additional attention could be given to the phenomenological collection of sensory data, and how improvements to the *Experience Probe* (while maintaining strong visual communication techniques), could facilitate this. The qualitative coding of the sensory data could also be further researched, to enhance how Step 1 can help to identify experiential moments within the sensory data much quicker.

Alternative distribution methods for the **VPM**, beyond the method cards, could be a rich seam of research to pursue post-doctoral. Other distribution methods could feasibly involve the development of a mobile or tablet app, which would give more multimedia options to explaining the methodology to interaction designers. From a theoretical position if the peer reviews were anything to go by (see Appendix E), the synthesis of *hermeneutic-semiosis* and use of a *visual hermeneutic circle* in this PhD, would prove a rich area for debates between phenomenologists,[2] Pragmatists, and semioticians. While design researchers, who are interested in developing the *Visual Communication* literature further, will be interested in how the coupling of montage with Semiosis can be developed in response to other design problems.

The main area of interest for the author as post-doctorate study, emerged quite unexpectedly from this research journey. Without the connections made during developing the **VPM** from the contextual review, the author would never have become an advocate of Peircean semiotics. This pragmatic form of semiotics from the turn of the Twentieth century, has made the largest

2 Both eidetic and hermeneutic phenomenologists.

impact on both the author's own practice and pedagogy.[3] In this capacity, he is currently teaching Peircean Semiosis as part of an international curriculum, in the UK and Indonesia. This has been the transformative power of researching and writing this PhD, as it is now bringing the power of sign-action directly to a new international generation of designers. So in the context of post-doctoral work, the author's attention will focus more on Semiosis than on the phenomenological, within the facilitation of behavioural change.

The use of the *Dicent Sinsign* and *Dicent Symbol* have proved themselves to be strong structures for visually interpreting. But future research into *Visual Communication*, could explore the remaining eight semiotic Signs to find other uses beyond Interaction Design, which could be utilised. Semiosis is grounded in the phenomenological states of *Firstness*, *Secondness*, and *Thirdness*. So in this future area of research, there is scope to develop *hermeneutic-semiosis* into new directions for other design problems. The author of this PhD has already written three sample chapters on *Semiosis and Design*, as part of a new design book proposal for his existing UK book publisher.

Without engaging in this research and developing the **VPM**, he would never have considered how *Visual Communication* connects on a phenomenological level to the lived experiences of others. Nor would he have discovered the power of Peirce's Semiosis, which has opened up fresh areas for *Visual Communication* research that expands the discipline's literature. Already this PhD has positively contributed to negating the idea that *Visual Communication* "as a profession has long had an aversion to theory" (Rock and Poynor, 1995, pp56-59). By synthesising visual communication techniques with *hermeneutic-semiosis*, the **VPM** provides one way for the design discipline of *Visual Communication* to re-influence Interaction Design and other designers "across the boundaries" (Poynor, 2004, p27) of what is understood as 'graphic design.'

3 When this PhD began the author was a HE lecturer teaching design to undergraduate students, within a small regional English FE college. During the three practical projects he had moved to Scotland. He became a university HE lecturer teaching a module in *Design and the User*, which his PhD research fed directly into. As he concludes this PhD he is a Senior Lecturer in Graphic Design in an Northern English university. He now teaches *Visual Communication* internationally, with a published book on *Visual Communication* and Interaction Design behind him.

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Image List

Main Thesis

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Appendices

Appendix A: Visual Communication Outputs

Examiners can refer to the large format colour book as Appendix A takes that form. Otherwise, to satisfy The University of Edinburgh's regulatory standards for the format and binding of a thesis, other readers can refer to the digital PDF version of the book which is attached on a CD to the inside back cover.

Appendix B: Adapting the Methodology.

In Chapter 4 I briefly outlined the adaptation of the van Kaam/Moustakas phenomenological method to a more hermeneutic model. During the chapter I did not want to slow the dissertation down with an overly detailed account, so to explain it fully I present it here, complete with additional footnotes.

1. Listing and Preliminary Grouping (horizonalization)

The original van Kaam method (1959, p69) states:

> "Phenomenal analysis is based on the data as presented by the subject, and every expression must be listed, whether or not believed worthwhile by the researcher. This faithfulness to "things as they appear" (phenomenon = that which appears) results in a wide range of expressions, some of which may be superfluous for the final purpose of the analysis. This inclusiveness avoids the selective influence of any implicit philosophy of the researcher at this stage. It also enables other researchers to do control analyses on the basis of raw data".

Moustakas' adaptation (1994, p120) states:

> "List every expression relevant to the experience."

My adaptation to a hermeneutic phenomenological approach took the following approach:

> **Step 1 - Moments of Experience: Spotting, abstracting & labelling moments**
>
> **Goal…** To reveal from people's testimony of a shared interactive experience what they actually experienced, moments from the whole experience must be spotted and labelled. To be abstracted, these moments need to be self-contained.
>
> **Do…** Using testimonies from your user research on an experience similar to one you need to design for, IDENTIFY moments that can be abstracted and labelled as such. Look for evidence of an *object*, its context and its quality. Once the core experiential moments are labelled they can now all be visually interpreted. Once done, go to Step 2.

2. Reduction and Elimination

The original van Kaam method (1959, p69) states:

> "Each expression of a subject is tested for two requirements: (a) Does it contain a moment of the experience that might eventually be a necessary and sufficient constituent of the experience under study? (b) If so, is it possible to abstract this moment and to label it, without violating the formulation presented by the subject? Expressions not meeting these two requirements are eliminated. Concrete, vague, and overlapping expressions are reduced to more exactly descriptive terms."

Moustakas' adaptation (1994, pp120-121) states:

"To determine the Invariant Constituents: Test each expression for two requirements:

a. Does it contain a moment of the experience that is a necessary and sufficient constituent for understanding it?

b. Is it possible to abstract and label it? If so, it is a horizon of the experience. Expressions not meeting the above requirements are eliminated. Overlapping, repetitive, and vague expressions are also eliminated or presented in more exact descriptive terms. The horizons that remain are the invariant constituents of the experience."

My adaptation to a hermeneutic phenomenological approach took the following approach:

Step 2 - Core experiential moments, visually interpreted

Goal… Each abstracted experiential moment should have a focus of what makes it a moment – an *object* that will form the focus for the visual interpretation. This *object* may be an abstract thing (e.g. listening) or more tangible (e.g. action). The *object* needs a context to provide ground to be visually interpreted and communicated as a core *theme*. The context is specific to each moment but it may only be suggested in the person's testimony — so look for it. The experiential *object* needs to be communicated and immediately understood, so visual interpretation of its qualities must be obvious. The use of metaphors or suggestive associations will help this communication.

Do… Keeping close to a testimony select image(s) that will represent the *object* in your visual interpretation of each moment. Visually revealing a person's experience is the aim, so if the person needs representing — silhouette them. Select suitable images to represent the context in which the moment happens. To make a visual interpretation of a context you may need to use montage to form a coherent single image that represents what the person saw. The labelled moment itself provides the quality, but how it is visually communicated lies in your creativeness as the interpreter. Metaphor, colours, image overlays and juxtapositions work to achieve this. Be suggestive.

3. Clustering and Thematizing the Invariant Constituents

The original van Kaam method (1959, p69) states:

"Tentative identification of the descriptive constituents. All expressions found in the preceding step to be direct or indirect representatives of a common relevant moment of the experience are brought together in a cluster which is labeled with the more abstract formula expressing this common moment. One expression may pertain to various clusters, namely, when it represents several moments of experience."

Moustakas' adaptation (1994, p121) states:

"Cluster the invariant constituents of the experience that are related into a thematic label. The clustered and labeled constituents are the core *themes* of the experience."

My adaptation to a hermeneutic phenomenological approach took the following approach:

Step 3 - A Thematic Interpretation: PART of an experience, visually interpretated

Goal… Through following the process in Step 2 and creating the initial visual interpretation of a *theme*, deeper insights are revealed and understanding emerges about the *whole* experience by understanding the *parts* that form it.

Do… Choose a consistent image dimension to work with and stick to this throughout. Now with images for each moment's *object*, its quality and context create a visual interpretation of each experiential moment you identified.

4. Identification of the Invariant Constituents and Themes by Application

The original van Kaam method (1959, p69) states:

"The operation consists in checking the tentatively identified constituents against random cases of the sample to see whether they fulfil the following conditions. Each constituent must (a) be expressed explicitly in some explications, (b) be expressed explicitly or implicitly in the large majority of explications, (c) be compatible with the explications in which it is not expressed, (d) If an explication is found incompatible with a constituent, the former must be proven to be not an expression of the experience under study, but of some other experience which intrudes upon it."

Moustakas' adaptation (1994, p121) states:

"Validation - Check the invariant constituents and their accompanying theme against the complete record of the research participant. (1) Are they expressed explicitly in the complete transcription? (2) Are they compatible if not explicitly expressed? (3) If they are not explicit or compatible, they are not relevant to the co-researcher's experience and should be deleted."

My adaptation to a hermeneutic phenomenological approach took the following approach:

Step 4 - One's Experiential Themes: A visual interpretation of a person's experience

Goal… All visually interpreted moments from one person's testimony are now composited sequentially for the first insight into what they say they experienced. This step reveals one person's interpreted core *themes* all at once.

Do… With Step 3 completed and moments visually interpreted, sequentially collate them in one layout from beginning to end. This forms a visual of what one individual saw, felt and did as THEY saw it — visually interpreted by YOU.

5. Individual Textural Description of the experience

The original van Kaam method (1959, p69) makes no statement on this as it is a particular Eidetic research output amended by Moustakas, so his adaptation (1994, p121) states:

"Using the relevant, validated invariant constituents and *themes*, construct for each co-researcher an Individual Textural Description of the experience. Include verbatim examples from the transcribed interview."

My adaptation to a hermeneutic phenomenological approach took the

following approach:

Step 5 - Clustered Common Themes: Revealing the shared experiential structure

Goal… The visual interpretation can be taken further if more depth is needed. By visually clustering thematic commonalities from several testimonies shared experiential structures can be revealed for interpretation.

Do… Examine the individual set of *themes* across all the testimonies from Step 4 to cluster those that have overlapping commonalities. Discard any *themes* that are not clustered. Clusters should show what is experienced by all.

6. Imaginative Variation

The original van Kaam method (1959, p69) makes no statement on this as it is a particular Eidetic research output amended by Moustakas, so his adaptation (1994, p121) states:

"Construct for each co-researcher an Individual Structural Description of the experience based on the Individual Textural Description and Imaginative Variation."

My adaptation to a hermeneutic phenomenological approach took the following approach:

Step 6 - Experiential Structures: Revealing the structures of experience

Goal… Examining the clusters for experiential commonalities will define its structures. The method, through clustering, goes beyond personal testimony to visually interpret the structure of the *whole* experience of a shared interaction.

Do… From each cluster synthesise a new general image to summarise each core *theme* into a visual interpretation revealing its shared experiential structure. Ignore the personal and look for the commonalities to visualise.

7. Textural-Structural Description

The original van Kaam method (1959, p69) makes no statement on this as it is a particular Eidetic research output amended by Moustakas, so his adaptation (1994, p121) states:

"Construct for each research *part*icipant a Textural-Structural Description of the meanings and essences of the experience, incorporating the invariant constituents and *themes*. From the Individual Textural-Structural Descriptions, develop a Composite Description of the meanings and essences of the experience, representing the group as a whole."

My adaptation to a hermeneutic phenomenological approach took the following approach:

Step 7 - The Visual Interpretation: Communicating the composite experience

Goal… Once Step 6 has been done for every cluster then a final

reductive turn in the *circle* takes place revealing the experiential structure of how people saw, felt and reacted within an experience.

Do… Now that you have arrived at the final turn in the process you will use a step similar to Step 4 to seek a general visual representation of what was commonly seen, felt and done in the experience — visually interpreted by you. To do this, collate the experiential structures from Step 6 in one final image sequentially showing the experience as a whole.

Appendix C: The Ten Classes of Peirce's Semiotic Signs

Fig. C.1: A visual example of a Rhematic Iconic Qualisign (1).

1. Rhematic Iconic Qualisign

The first Sign and lowest in sign-action power is the *Rhematic Iconic Qualisign (1)* that Peirce describes as being only "identified as a Sign through the immediate similarity of its quality to the *Object*" (Peirce, 1932 [2.254], pp146-147). He gives the visual example of "a feeling of red" to describe this as a semiotic Sign as it "can only be interpreted as a Sign of essence" (*ibid*. p147) and "its *Object* is interpreted as being of the same nature" (Queiroz, 2012b, p58). Within *Visual Communication* this form of communication can be described as *synecdoche*[1] (a *part* of something that suggests the *whole* thing).

1 Pronounced *sin-neck-doe-key*.

Barnard stated that all of *Visual Communication*'s designed outcomes that use photography "contains visual synecdoche" which is achieved by "selecting a part or a detail of [a photographed action or event] and 'freezing' it in the image" within the design (Barnard, *2005*, p*53*). An example of a *Rhematic Iconic Qualisign* can be anything from colour, texture, etc. that hints at the *Object*. A visual example may be something like seeing a partially stylised bat shape to understand it is referring to the Batman comic strip character (see Fig. C.1). It is synecdochic in its possibility (*rheme*) to visually show an *essence* [*part* of an *Object*] interpreted to identify the whole originating *Object* (*iconic*). This can only ever be represented by visually 'freezing' it into a *qualisign*.

2. Rhematic Iconic Sinsign

The second Sign is the *Rhematic Iconic Sinsign (2)* that Peirce describes as "any *Object* of experience in so far as some quality of it makes it determine the idea of an *Object*" (Peirce, 1932 [2.255], p147). To describe this Sign Peirce suggests "an individual diagram" (*ibid*.) as an example. Huang and Chuang explain that as the second Sign is also *iconic* "it is a Sign of likeness; hence it can be only interpreted as a Sign of *essence*. [The second Sign] embodies [the first Sign]. In other words [the *Rhematic Iconic Sinsign*] is the actual existence of [*Rhematic Iconic Qualisign (1)*]" (Huang and Chuang, 2008, p8).

A *Rhematic Iconic Sinsign* determines an *Object* of experience from this one-off existent (*sinsign*) representing the (*rhematic*) possible (*iconic*) qualities of the *Object* through the Sign as-is (by understanding its *immediate Interpretant*) (Queiroz, *2012*b, p*58*). Within *Visual Communication* this form of communication can be described as blueprints, charts, floor plans, diagrams, graphs, maps, or schemes where the *Object* (in this case the data) is visually communicated to be 'read.' This 'data' in itself represents the *essence* of a bigger idea, a building, an artefact, a geographic area, etc. A visual example of 'a diagram' may include something like the image New York Deconstructed by Armelle Caron (see Fig. C.2). It isn't anything more than a diagram of data about the city of New York, showing very basic shapes (*iconic*) illustrating one possible way (*rhematic*) of representing New York as a one-off image (a *sinsign*).

3. Rhematic Indexical Sinsign

The third Sign is the *Rhematic Indexical Sinsign (3)* that Peirce describes as "any *object* of direct experience so far as it directs attention to an *Object* by which its presence is caused" (Peirce, 1932 [2.256], p147). This third Sign crosses the boundary between an *immediate* Sign to a *dynamic* Sign that draws attention to any *Object* of "direct experience, connection or existential relation (...) with possible evidence that some relations have been connected, and thus indicates

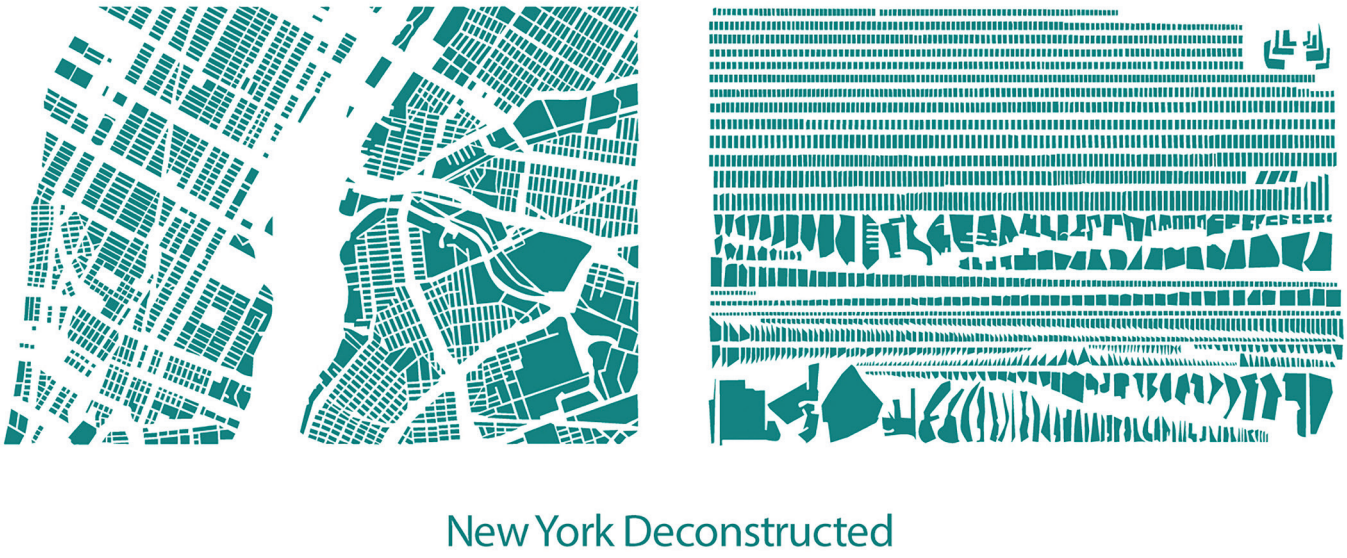


Fig. C.2: A visual example of a Rhematic Iconic Sinsign (2).

some previous state of affairs" (Huang and Chuang, 2008, p8). It achieves this semiotically through the presence of itself as a Sign by nesting a *Rhematic Iconic Sinsign* (the second Sign) to focus "the interpreter's attention" on the third Sign's likeness to the "*Object* responsible for its presence or existence" (*ibid.*). As a Sign it still can only exist as a possibility of being interpreted as a Sign through an *Interpretant* that is *rhematic*.

Queiroz describes this third Sign's as "a sign-event interpreted as possibly standing for another event" (Queiroz, *2012*b, p*58*). Peirce in order to explain this semiotic Sign gives the example of "a spontaneous cry" (Peirce, *1932* [*2.256*], p*147*), but although this example is reiterated through the literature there is a dearth of alternative visual examples of what his Sign could be. The nature of a spontaneous cry that draws attention to its *Object* translated within *Visual Communication* to a visual form of communication can be described as a bold attention grabber, such as a suitable headline set in a display typeface or a striking illustration that uses *iconic* representations (second Sign) to *indexically* point to an existent thing such as the music event (see Fig. C.3). In itself this third semiotic Sign cannot communicate semiotically any great amounts of information, but operating either as a bold piece of typography or illustration it draws "the interpreter's attention" on the Sign's likeness to the "*Object* responsible for its presence or existence" (Huang and Chuang, *2008*, p*8*). Once the semiotic Sign has held the attention, the additional information that is featured on the design can be processed.

4. Dicent Indexical Sinsign

The fourth Sign is the *Dicent Indexical Sinsign (4)* that Peirce describes as "any *Object* of direct experience, in so far as it is a Sign, and, as such, affords information concerning its *Object*" (Peirce, 1932 [2.257], p147). The fourth Sign is "of direct experience, connection or existential relation" (Huang and Chuang, 2008, p9) that "spatio-temporally" (Queiroz, 2012b, p58) conveys information about the direct experience of its *Object*. The only information that can be interpreted from a *Dicent Indexical Sinsign* "is of actual fact" (Huang and Chuang, 2008, p9). Therefore, as Peirce logically defines it, it can only be represented as a one-off (*sinsign*) that uses an *indexical* representation to communicate the experience of its *Object*. As an existent Sign, it can only be interpreted through a proposition that makes its *Interpretant dicent* to understand the direct experience. This fourth Sign utilises a nested *Rhematic Iconic Sinsign (2)* to present the information on the *Object* and a nested *Rhematic Indexical Sinsign (3)* to communicate the *Object*. Like in the previous Sign Peirce gives an example of the fourth Sign as "a weathercock" (Peirce, 1932 [2.257], p147)) to describe it. Again this concept is reiterated throughout the Peircean literature, and again there is a dearth of alternative visual examples of what his Sign could be. Peirce's thinking on the weathercock example was just as a weathercock on a church steeple communicates its *Object* (the wind) through its Interpretant, the direction it points to when blown, (this is the *Rhematic Indexical Sinsign (3)*). The weathercock as a *Representamen* takes the form of a 2D cockerel (this is the *Rhematic Iconic Sinsign (2)*) announcing the wind direction.

Within *Visual Communication* this more complex form of communicating can be described as engaging in a level of design as reportage, were the designer can be described in terms such as a facilitator to communicate a direct experience. A visual example of a *Dicent Indexical Sinsign*[2] may be something like Ben Heine's images in his Pencil vs. Camera Photo Project (see Fig. C.4), where he uses a photograph of an existent experience and using a visual intervention of a drawing adds a level of commentary to it to communicate his thoughts on experiencing the fly tipping. The completed image is the *Dicent Indexical Sinsign*. In the visual example the part that is the drawn element is a nested *Rhematic Indexical Sinsign* (3) pointing to the possibility of the intentions of the fly dumpers, while the photographic element with a blurred depth of field is a nested *Rhematic Iconic Sinsign* (2) showing the qualities of fly dumping. Combined together the image may visually communicate the motivations of the dumpers, but more accurately it communicates the disdain felt by Heine on discovering the fly tip.

2 Peirce shortened this to the term *Dicent Sinsign* (Peirce, 1932 [2.257], p147) not to be confused with the terms *Dicisign* and Dicent Sign that refer to alternatives for the Interpretant subclass of *dicent* (Peirce, 1932 [2.251], p144).

Fig. C.3: A visual example of a Rhematic Indexical Sinsign (3). The nested second Sign is evident in the three *iconic* depictions of a snowflake, a saxophone and the moon.

5. Rhematic Iconic Legisign

The fifth Sign is the *Rhematic Iconic Legisign* (*5*) that Peirce describes as "any general law or type, in so far as it requires each instance of it to embody a definite quality which renders it fit to call up in the mind the idea of a like *Object*" (Peirce, *1932* [*2.258*], p*147*). This fifth Sign is another *immediate* Sign but one using a higher level of representation as a *legisign*, and "deals with the process whereby representation creates or discovers a possible rule" (Huang and Chuang, *2008*, p*9*). This infers a need for the Sign to call up in the interpreter's mind the idea of the *Object* so it uses an *iconic* representation to do this, and as such only remains a possibility of being interpreted as a Sign because it is also *rhematic* in nature. As a *legisign* it governs single *Replicas* of itself, where these instances "will be a [*Rhematic Iconic Sinsign* (2)] of a peculiar

kind" (*ibid*.) in order to connect to the qualitative likenesses of the *essence* of the represented *Object*. Peirce describes the fifth Sign as "a diagram, apart from its factual individuality" (Peirce, *1932* [*2.258*], p*147*). Although a *legisign*, the fifth Sign is one that operates at a lower phenomenological level of *Firstness* based on possibilities (*rhematic*) and qualities (*iconic*). As such it communicates at a higher level of representation (a *legisign*) than the second Sign (a one-off *sinsign*) by being more definitive in the information it is communicating.

If the second Sign takes the form of blueprints, charts, floor plans, diagrams, graphs, maps, or schemes where the data (*Object*) is to be read, then a fifth Sign that is "apart from its factual individuality" can be described within *Visual Communication* as wayfinding signage that is devoid of any written language to aid universal communication. A visual example of such a *Rhematic Iconic Legisign* may be something like Australian designer Matt Ryan's Casselden Basement Cyclist Facilities wayfinding system (see Fig. C.5). Here the diagrammatical rendering is purely on a level of using *Rhematic Iconic Sinsigns* as *Replicas* (instances of a *legisign*) to visually communicate information to cyclists of the facilities available to them. The possibilities of the representation (*rhematic*) and what the facilities are (*Object*) are indicated *iconically*. It can be argued that once Casselden's cyclists begin to understand their wayfinding system then the whole system of *Visual Communication* begins to function at a higher *symbolic* level. But for now, while still discussing *rhematic* semiotic Signs that can only ever be possibilities and not general laws, the talk of *symbolic* representations is premature and best left until the review reaches the higher functioning Signs.

6. Rhematic Indexical Legisign

The sixth Sign is the *Rhematic Indexical Legisign* (*6*) that Peirce describes as "any general type or law, however established, which requires each instance of it to be really affected by its *Object* in such a manner as merely to draw attention to that *Object*" (Peirce, *1932* [*2.259*], pp*147- 148*). This sixth Sign is a mid-table Sign that is the highest use of *rhematic* representation of the *Interpretant*, so that what is interpreted still remains a possibility despite that the *Object* is *indexically* represented and its *Representamen* is a *legisign* that is the highest form its representation can take. Using an *indexical* representation that has an existential connection to the *Object* rests in the phenomenological state of *Secondness*, while its general acceptance of interpretation amongst its audience rests in the state of *Thirdness* as a *legisign*. As such the sixth Sign communicates specific information within groups of interpreters who share the common held understanding of the Sign's meaning through *Replicas* (instances of the *legisign*) as *Rhematic Indexical Sinsigns* (*3*) "of a peculiar kind" that are "strongly

Fig. C.4: A visual example of a Dicent Indexical Sinsign (4).

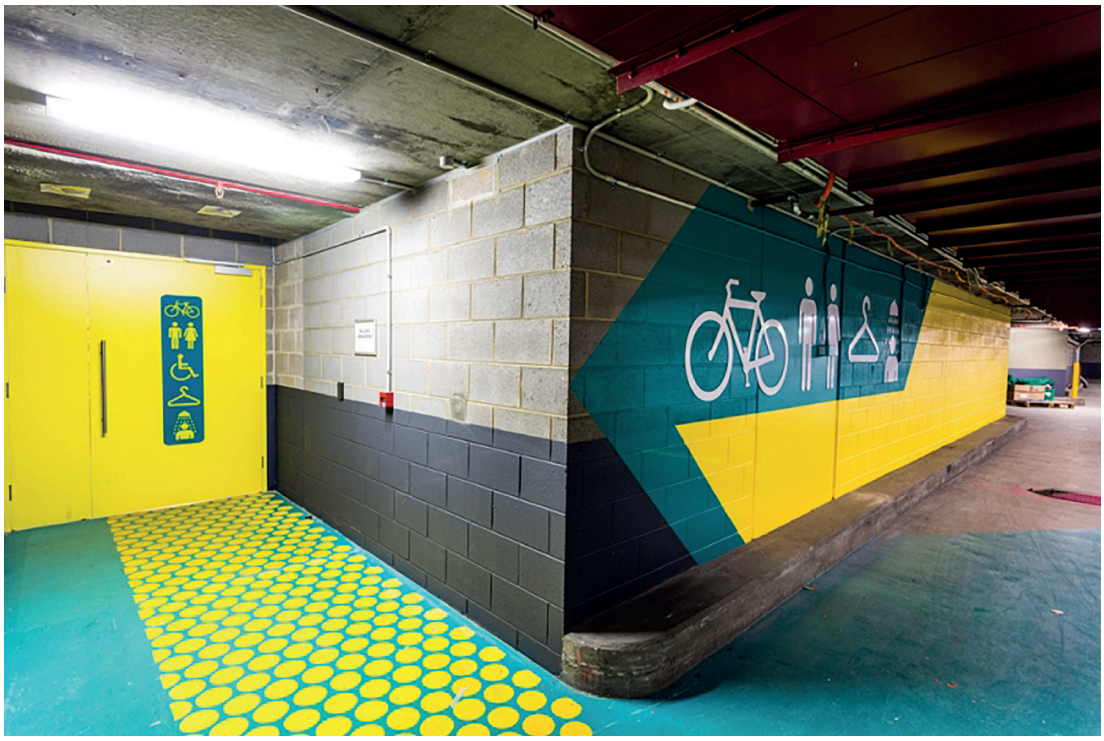


Fig. C.5: A visual example of a Rhematic Iconic Legisign (5).

influenced by its *Indexical Object*" (Huang and Chuang, *2008*, p*10*).

Peirce refers to this Sign type as "a demonstrative pronoun" (Peirce, *1932* [*2.259*], pp*147-148*) to describe this as a semiotic Sign. As an example this needs more unpacking for it to make sense in a visual context. If in grammar the words 'this, that, these and those' take the place of a noun then in Semiosis the *Rhematic Indexical Legisign* as a Sign takes the place in the communication of the replaced *Object* so that it still is understandable. The *indexical*lity of representing the *Object* must ensure that there remains an existent link to the replaced *Object*. Within *Visual Communication* this form of communication can be described as a metonym, where one thing that is closely associated with another thing can replace the original and still the meaning can be interpreted and understood. A visual example of a *Rhematic Indexical Legisign* may be something like in branding design where an aspect of a company or organisation is summed up within the design itself. As an example of this the branding done for Risha Kariwal, an Indian interior designer (see Fig. C.6) by graphic designer Smriti Kariwal, shows the interior area of the business card has been designed as a cutaway pattern within the interior of the business card's dimensions using a laser cutter, to suggest the interior design and attention to detail that Risha is commissioned for.

7. Dicent Indexical Legisign

The seventh Sign is the *Dicent Indexical Legisign* (*7*) that Peirce describes as "any general type or law, however established, which requires each instance of it to be really affected by its *Object* in such a manner as to furnish definite information concerning that *Object*" (Peirce, *1932* [*2.260*], p*148*). The seventh Sign is used to communicate definite existential information about its *Object*. Both the Sign's *Interpretant* and *Object* are existent, while the *Representamen* as a *legisign* is at the highest final level of the triadic order. Queiroz defines this Sign as "spatio-temporally reacting with its *Object*" (Queiroz, *2012*, p*59*) and Peirce gives the example of "a street cry" (Peirce, *1932* [*2.260*], p*148*) to describe this as a semiotic Sign. As a *legisign* it governs itself through the use of *Replicas* (instances of the *Dicent Indexical Legisign* (*7*)) that need to "furnish definite information concerning" the *Object* that the seventh Sign is communicating. It does so by involving both the fifth Sign "to present the information" and the sixth Sign "to indicate the subject of the information", but each *Replica* of it will be a *Dicent Indexical Sinsign* (*4*) "of a peculiar kind" (Huang and Chuang, *2008*, p*10*). The definite information provided about the *Object* is done using *indexical* representation.

To present this existential information this seventh Sign nests a *Rhematic Iconic Legisign* (*5*) to help, and a *Rhematic Indexical Legisign* (*6*) to indicate the

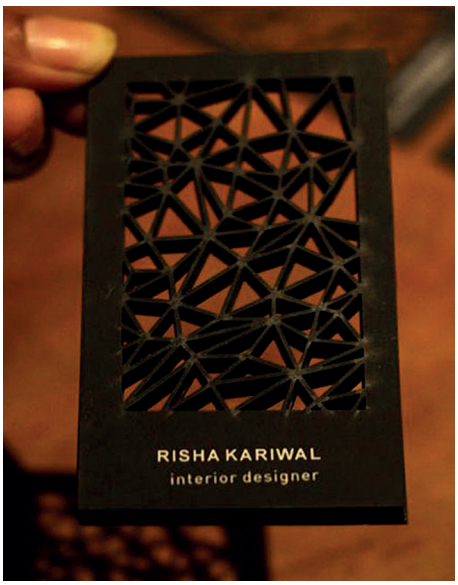


Fig. 2.30: A visual example of a Rhematic Indexical Legisign (6).

subject of that information. This information is interpreted as a proposition through a *dicent* Sign and represented by a *legisign*. A 'street cry' is, like many of Peirce's explanations, a limited example that needs further explaining. Unlike the example given by Peirce for the third Sign as a 'spontaneous cry' a 'street cry' is specific to an event such as a market trader shouting about their wares to passing customers. So a seventh Sign connects itself not only to a specific existent event (*dicent indexical*) but it also ensures how it is represented through a Sign is understood *immediate*ly (*legisign*). Within *Visual Communication* this form of communication has been utilised in many forms of design for event promotions (existent) in such a way that ***The Receiver*** will make sense of the design to understand what the event is for, when it is on, and how to be admitted to the event. As an *indexical* representation its choice of visuals will be representative of what is actually at the event rather than a more *symbolic* choice of visuals. Therefore a visual example of a *Dicent Indexical Legisign* may be something like a monster trucks event where the poster is so blatant in its *indexical* representation of the event (see Fig. C.*7*).

8. Rhematic Symbolic Legisign

The eighth Sign is the *Rhematic Symbolic Legisign* (*8*) that Peirce describes as "a Sign connected with its *Object* by an association of general ideas in such a way that its *Replica* calls up an image in the mind which image, owing to certain habits or dispositions of that mind, tends to produce a general concept, and the *Replica* is interpreted as a Sign of an *Object* that is an instance of that concept" (Peirce, *1932* [*2.261*], pp*148-149*). This eighth Sign is a higher-level Sign (and the highest *rhematic*al representation) that has reached a level of acceptance

by interpreters that it is used generally to make a connection to its *Object* "by any connection of general ideas. The Sign deals with a formal possible open rule, which forms a general explanation of the Sign" (Huang and Chuang, *2008*, p*11*). As this Sign's interpretation has reached a level of final acceptance amongst the ***Receivers*** it represents itself (*Representamen*) by using a *legisign*. It communicates its *Object* by using a *symbolic* representation (sometimes, like the seventh Sign, by either utilising (through nesting) a *Rhematic Iconic Legisign* (*5*) or *Rhematic Indexical Legisign* (*6*) to help in strengthening the possibility of representation). This is because "it shares a little of the nature of both Signs" (*ibid*. p*11*).

As a *legisign* it governs its *Replica* as a peculiar kind of a *Rhematic Indexical Sinsign* (*3*) where the possibility (*rheme*) of the association is seen as a one-off instance (*sinsign*) that connects to the bigger concept of the *Object*. What this translates to in real terms is that as a *symbolic* image for it to be read it must not be too abstracted from a real thing (the *indexicality* of the *Replica* leads to an association that unlocks the *symbolic* meaning) that will help ***The Receiver*** to make the initial connection that will unlock the meaning of the Sign. To describe an example of this "Peirce used 'a common noun' or a 'general term'" (Huang and Chuang, *2008*, p*11*) but again this is not *immediate*ly visually obvious and needs further exploration. He uses two common nouns to explain his point, that of 'camel' and 'phoenix' (Peirce, *1932* [*2.261*], pp*148-149*). The word camel *indexically* "calls up the idea of a camel" leading from a possible representation (*rheme*) to an existent (*dicent*) general concept of a camel that is already understood, so that a camel (being the *Object*) is *symbolically* represented in the communication. A camel is already a real animal, but even mythical or literary things such as a phoenix can still be communicated in the same way as descriptions exist that may be known to ***The Receiver***. In this way the eighth Sign can communicate a wide variety of real or imagined concepts, as the interpretation (*Interpretant*) is always a possibility.

Within *Visual Communication* this form of communication can be found in depiction techniques that utilise the rich difference of possibilities between denotational and connotational meanings. A 'camel' may denotationally communicate a 'ship of the desert' to some people (*Rhematic Indexical Sinsign* (*3*)) but from this semiotic start, the eighth Sign will to a particular audience continue to communicate the connotational message of a 'camel' as a brand of cigarettes (*Rhematic Symbolic Legisign* (*8*)). Smokers understand that the Camel brand means THAT brand of cigarettes (*Representamen = legisign*) as that tobacco company uses a 'camel' as its brand (*Object = symbolic*). So a 'camel' has a possibility of meaning something else if that extra level of understanding is known (*Interpretant = rhematic*). Therefore a visual example of a *Rhematic*

Fig. C.7: A visual example of a Dicent Indexical Legisign (7).

Symbolic Legisign may be something like a campaign that plays on the duality of meanings made from one image. In the French anti-obesity health campaign (see Fig. C.8) the *symbolic* meaning of the image shows two possible interpretations at once: an ice cream cone (denotational + *Rhematic Indexical Sinsign* (3)), or an obese human stomach as a result of a bad diet (connotational + *Rhematic Symbolic Legisign* (8)).

9. *Dicent Symbol*ic Legisign

The ninth Sign is the *Dicent Symbolic Legisign* (9) that Peirce describes as "a Sign connected with its *Object* by an association of general ideas, and acting like a *Rhematic Symbol*, except that its intended *Interpretant* represents the *Dicent Symbol* as being, in respect to what it signifies, really affected by its *Object*, so that the existence or law which it calls to mind must be actually connected with the indicated *Object*" (Peirce, *1932* [*2.262*], p*149*). The ninth Sign is an advance up from being *immediate* to a Sign that has an *Interpretant* that is an actual existent (*dicent*). Huang and Chuang describe a *Dicent Symbolic Legisign* (*9*) as acting like a *Dicent Symbolic Legisign* (*8*) "but its intended *Interpretant* represents Sign (*9*) as an existential relation that must be connected with the

indicated *Object*" (*2008*, p*11*). This leads the Sign to being described by Peirce as an "ordinary Proposition" (Peirce, *1932* [*2.262*], p*149*). The ninth Sign, as a Sign, represents itself as a *legisign* and uses a *symbolic* representation to communicate its *Object* (the agreed proposition of the Sign). This *symbolic* representation is sometimes helped by utilising a *Dicent Indexical Legisign* (*7*) in the Sign in order to strengthen its overall representation.

Peirce shortened the ninth Sign's name to *Dicent Symbol* (Peirce, *1932* [*2.262*], p*149*), but maintaining that its existence or law "must be actually connected with the indicated *Object*" (*ibid*.) and its *Replica* does this as it is a one-off (*sinsign*), existent (*indexical*), premise (*dicent*) that shows the existential relationship. The ninth Sign's *Replica* (a peculiar type of *Dicent Indexical Sinsign* (*4*)) is easy to recognise "as a *Replica* of Sign (*9*) because the information conveyed by the Sign is of an actual fact or an existential relation" (Huang and Chuang, *2008*, p*11*). This means that there is an existential relationship to the *Object* made through the use of a *Replica* because a *Dicent Indexical Sinsign* in itself cannot "convey information of law [fact]" except if used as a *Replica* (an instance of the ninth Sign) when fourth Sign helps call to mind to ***The Receiver*** the ninth Sign's general idea.

Queiroz in his work on biomimicry through a Peircean framework prefers to use the shortened term *Dicent Symbol*, which he defines as "the (composite) Signs which may be true or false" (Queiroz *et al*., *2012*, p*81*). Within *Visual Communication* this form of 'ordinary proposition' can be described as a matter of truth or fiction and whether ***The Receiver*** can understand the difference in order to extract the meaning. To visually represent propositions its designers have used all kinds of techniques such as metaphor, simile, irony, impossibilities and 'lies' to effectively communicate. A visual example of such a *Dicent Symbolic Legisign* as an 'ordinary Proposition' may be something like the guardsman in the barbershop image (see Fig. C.9). In this spoof image the proposition that a barber cuts hair, and that under the hair that is cut is scalp is cleverly manipulated by an image of a British Guardsman getting his head shaved. The impossibility of his head being the same shape as his bearskin headwear is used to sell the proposition as a spoof.

The *Dicent Symbolic Legisign* semiotically is a very advanced technique to visually communicate quite complex concepts in a deceptively simple way. Explaining how this image is a *Dicent Symbolic Legisign* is easy. As a Sign it is communicating the proposition of the 'association of general ideas' (a) that barbers cut hair; (b) scalps are under the cut hair; and (c) the scalp will be revealed if the hair is cut off. This image connects 'with its *Object*' which is hair cutting. Now with the in-joke of the patron being a British Guardsman who are known for wearing large formal bearskin headgear, the proposition in the

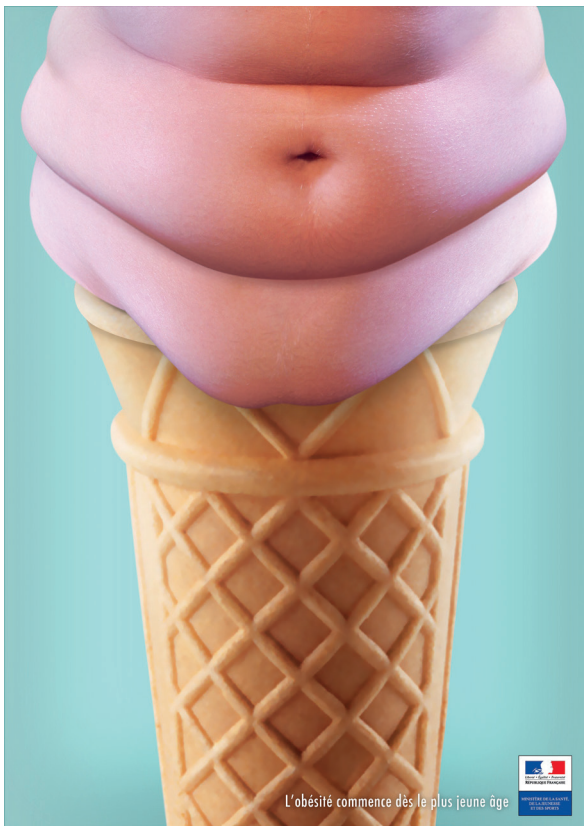
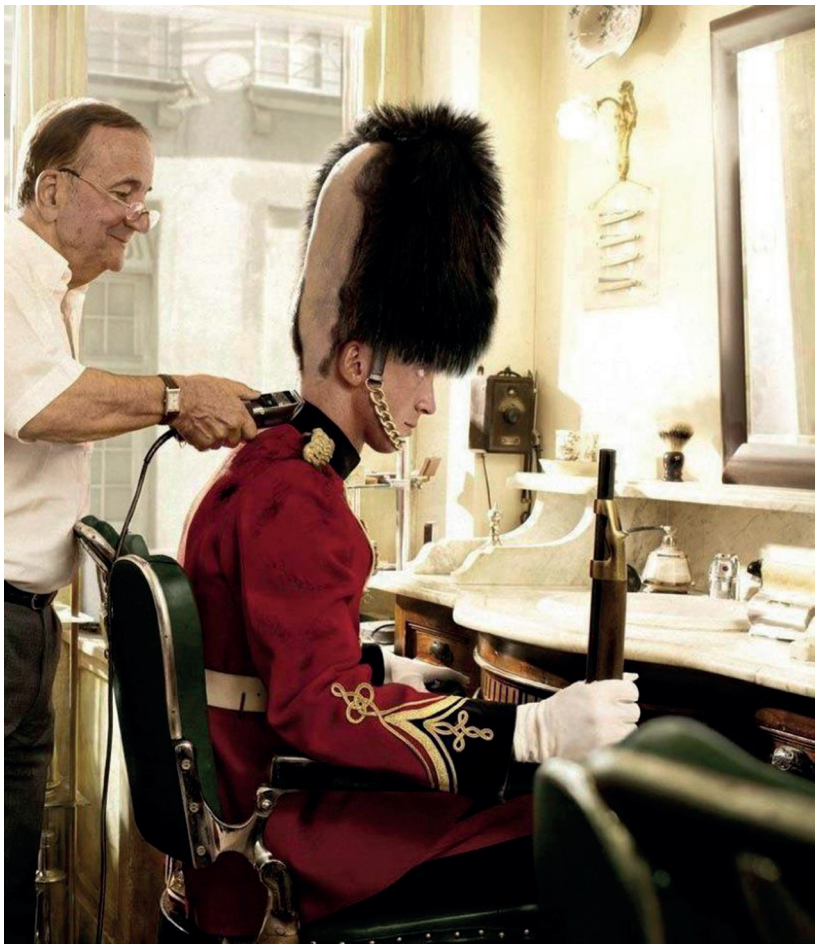


Fig. C.8: A visual example of a Rhematic Symbolic Legisign (8)



.Fig. C.9: A visual example of a *Dicent Symbol*ic Legisign (9).

image raises the idea of what if it is really his hair arises.

Hence the scalp taking an illogical and fanciful shape of the bearskin instead of the normal human skull shape. This is visually communicated within an image of 'an actual experience' (e.g.haircutting) in the form of a fourth Sign - an instance (*Replica*) of the ninth Sign.

10. Argument Symbolic Legisign

The tenth and highest Sign is the *Argument Symbolic Legisign* (*10*) that Peirce describes as "a Sign whose *Interpretant* represents its *Object* as being an ulterior Sign through a law, namely, the law that the passage from all such premises to such conclusions tends to the truth. Manifestly, then, its *Object* must be general; that is, the *Argument* must be a *Symbol*. As a *Symbol* it must, further, be a *Legisign*. Its *Replica* is a *Dicent Sinsign*" (Peirce, *1932* [*2.263*], p*148*). Peirce calls the *Argument Symbolic Legisign* an ulterior Sign or a "a hidden Sign" (Huang and Chuang, *2008*, p*12*) that lies outside the previous nine Signs, as the tenth Sign rests fully in the state of *Thirdness*. Within this phenomenological state of *Thirdness* it can only (a) be represented as a *legisign*; and (b) it can only use a *symbolic* representation that "must be general" (*ibid*.), This then can only lead to a general acceptance of a semiotic 'truth' that Peirce defines as an argument.

As the tenth Sign is fully in a state of *Thirdness* it is "restricted by rules" (*ibid*.) as its *Representamen*, *Object*, and *Interpretant* all operate at the general level of agreed meaning. This means that its representation needs to be general to ensure as many ***Receivers*** will understand it. The *Object* it is indicating must generally be known and understood by as many ***Receivers*** as possible, while its *Interpretant* - the general message is not misunderstood. The use of a *Replica* facilitates this. Like in the ninth Sign, as a *legisign* an *Argument Symbolic Legisign* governs its *Replica* as a peculiar type of *Dicent Indexical Sinsign* (*4*). As a *Replica* this *indexical* instance of the tenth Sign is seen as an existent thing to be interpreted, which leads ***The Receiver*** to a final acceptance of the interpretation they reach.

Peirce does not give any concrete examples to describe how an *Argument Symbolic Legisign* actually appears as a semiotic Sign, but the tenth Sign constantly surrounds us in our everyday lives. Traffic lights are one example as a red light means STOP, and a green light means GO. All the lights operate on a *symbolic* level, and a red light indicates the *Object* 'you must stop.' The green light's *Object* indicates 'you can proceed.' In the case of the red light being ignored, then its argument (*Interpretant*) would be 'if you don't stop you will head into oncoming traffic and there will be consequences.' The green light's argument would be different. There is not just a single traffic light (*legisign*) but also many instances (*Replicas*) that represent this concept.

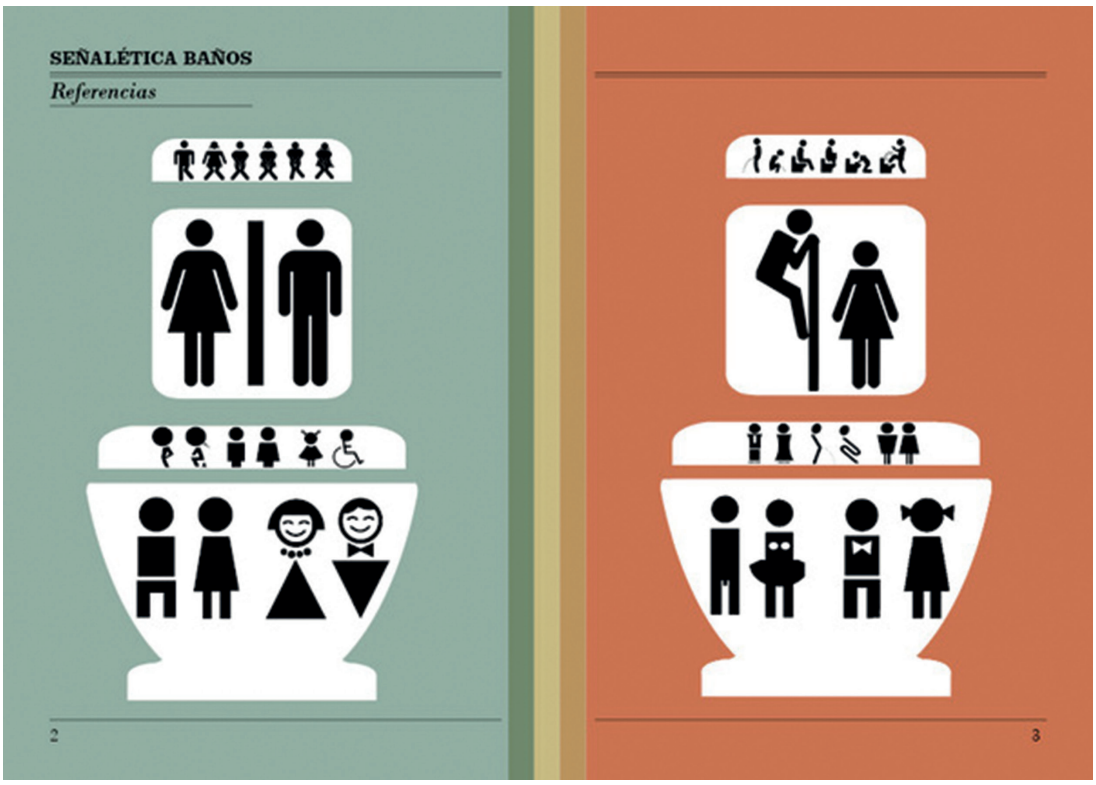


Fig. C.10: A visual example of an Argument Symbolic Legisign (10).

Each traffic light is a separate experience of the concept of a traffic light (*Argument Symbolic Legisign* (*10*)) and so is what Peirce defines as a peculiar type of *Dicent Indexical Sinsign* (*4*). Within *Visual Communication* this form of communication is used in designing signage, branding, and anything that needs a visual language that will communicate on a general level to many ***Receivers*** across boundaries. It is a holy grail for visually communicating, as socio-cultural and linguistic incompatibilities are the semiotic ***Noise***[3] that interferes with its success. But there are visual examples of successful *Argument Symbolic Legisign*s, and none are as humble as the general Sign for toilets we first encountered in Chapter *2*. Travel around the world and this *symbolic legisign* has been adopted as a general Sign for male and female toilet facilities (argument) as researched by the Ireland-based graphic designer Juan Solis (see Fig. C.*10*).

3 Frascara has this to say about Noise, "'Noise' is any distraction that appears between the information and the public, thereby interfering with, distorting, obliterating, or hiding the message. In the case of [Visual] communication design, *Noise* can appear at a purely visual level, because of elements or techniques that obscure the visibility of the stimuli presenting the information. It can also be caused at a semantic level, when the logic of *the message* does not match the cognitive culture of its intended audience. *Noise* can exist in the channel (medium), the code (language), or the form (aesthetics or style). *Noise* is created by irrelevant information, obliterating elements, or poor technical quality. The consequence of *Noise* can range from a lack of clarity to the total incomprehensibility of a message" (Frascara, 2004, pp8-9).

Appendix D: How a *Dicent Sinsign* or a *Dicent Symbol* Visually Communicates in a Visual Interpretation.

How a *Dicent Sinsign* or a *Dicent Symbol* is visually communicated depends on each designer-interpreter. The dimensions of each visual interpretation are arbitrary, but it is recommended that they should all be kept consistent. All of the visually interpreted examples that were generated, as part of **The Dynamic Sinsign Project** and **The Circle of Visual Interpretation**, were squared. To this chosen image dimensional space the basic 'rule of thirds' was applied by splitting it into 3 columns and 3 rows, revealing nine compositional areas. The optimum place for the main focus in the image is not always dead centre, but offset from the centre. This "helps create more impact" (de Soto, 2013, p64). By establishing the composition using the 'rule of thirds' (also used by photographers), this afforded the contextual information and the experiential qualities in the visual interpretation to be composed more easily, according to the most important thing that needs to be signified.

Added to this compositional rule, the amount of text to be used in a visual interpretation is dependent on the individual designer-interpreter. But its use should be decided to either be diagetic or non-diegetic in nature (two terms borrowed from film sound theory), as word(s) within a visual interpretation may be indicators of sound or noises. If the word(s) represent a sound or noise, as part of the narrative that is heard directly by the person recounting the experience, then it is diegetic. If the word(s) are sound effects [e.g. "The bus was noisy"] then they are there for effect, and so are non-diegetic. If a designer-interpreter intends to apply text within constructing a visual interpretation, in the form of labelling or titling, such as "THIS IS AN EXPERIENCE OF…" would be too descriptive (eidetic), and hermeneutically unhelpful in revealing an experience through visual interpretation.

The **VPM** is built on crafting visuals to signify what the designer-interpreter interprets as what is happening at a specific experiential moment. If text is used in an eidetic phenomenological way to describe what happened with text, there is no point in using the **VPM**. But if the designer-interpreter uses text within the visual interpretation in a more subtle way, then this should be considered

as *mise-en-scéne* (another film term meaning 'placing on stage'). In this way, the addition of text helps to frame the storytelling process, from within what is visible in the 'set' scene of the montaged visual interpretation. To successfully achieve this, each word would need careful typographic consideration, when placed within the created visual hierarchy of the montaged image. As every typeface has, and semiotically communicates, a different personality, which can affect the accurate communication of the intended meaning.

Traditionally serif typefaces suggest authority, sans serifs suggest modernism, and within the last thirty years monospace typefaces suggest coding. Once selected, the words set in the typeface also have an extra level of typographic attention, to ensure legibility and readability if the text is not just superficial decoration. Sizes and weights of the letter, the *leading* (space between lines of text), the *kerning* (space between two letters), and *tracking* (space between all letters) all affect how effective the word communicates. Each typeface, set at any point (pt) size, will appear smaller or larger if compared to each other, so optimising the pt size for setting within the word(s) used in a *Dicent Sinsign* needs attention. **Bold**, *italic*, roman, etc., define the weight of the letters, and setting the word(s) as UPPERCASE or lowercase, also affect the communicational impact. All these factors affect the immediate communication of the word(s), but what affects the subtle readability and legibility of the word(s), is the precise manipulation when its needed of the spaces between the two [*kerning*] or more [*tracking*] letters, or lines of words [*leading*].

Appendix E: Peer Review Feedback.

In this appendix the reader will find the peer review feedback referenced in the dissertation in its complete form based chronologically upon when it was solicited. With each set of peer reviews received there would be different disciplinary biases to be aware of. Peer comments on terminology use, and their early expectations in regard to developing the **VPM** in full, needed careful consideration to them jeopardising the fresh ideas coming from the discipline of *Visual Communication*. This was because of several factors. Some reviewers wanted something more substantial, than could be offered at the time of writing a positional paper early in the development of the **VPM**. Some peer reviewers were from a scientific and quantitative background. So their expectations on what they wanted to read in these papers, was in tension with a *Visual Communication* perspective of understanding the *essence* of a lived experience, within the process of *hermeneutic-semiosis*.

To facilitate easy referencing between the main thesis and this appendix, I will use both the full title and shortened citation against each piece of feedback.

2013 - Journal of Usability Studies (JUS)

In August 2013 after my May talk at UXPA in Edinburgh I submitted a paper to the UXPA's associated journal - *Journal of Usability Studies*. This paper, which was never published, was entitled *Dynamic Sinsign: Sign-action Visually Communicating Themes of User Experience*. In October 2013 I received the following two peer reviews, one was not anonymous as the Editor-in-Chief of JUS provided a review. Any of the main criticisms from the reviewers have already been discussed in chapters 3-5's critical incidents, and Chapter 6's discussion.

(JUS1, 2013) Reviewer #1 Joe Dumas, JUS Editor-in-Chief

DUMAS, J. (2013) Email to Dave Wood, 11th October.

From: Joe Dumas [joe.dumas99@gmail.com]
Sent: 11 October 2013 18:58
To: Wood, Dave
Cc: Joe Dumas
Subject: JUS review

Mr. Wood,
The review of your manuscript is complete. I have attached an

independent review form and an annotated version of the manuscript from the same reviewer. My review is part of this message.

JUS has two overlapping audiences: HCI researchers and user experience practitioners who apply the tools of the profession to the design and evaluation of products. The manuscript does not speak to researchers because there is no empirical data to support its claims about the method proposed. The fact that you might collect data in the future does not justify publishing what amounts to a proposal. The manuscript does not speak to user experience professionals, in this case designers, because it does not explain how the method is relevant to design and because the manuscript is filled with jargon. The jargon comes from the fact that the audience of design practitioners is not familiar with the theoretical underpinnings of the method and the manuscript makes no attempt to explain terms and concepts to its audience. As the reviewer points out, some of the language is inappropriate for a journal, such as claiming that the method is "clever" and speaking down to the reader with terms like "obviously."

Consequently, we cannot accept the manuscript for publication. If you go on to collect some data to validate your method and write a paper that speaks more directly to our audience, we would consider reviewing a future manuscript.

Thank you for considering JUS for publishing you work.
Joe Dumas
Editor in Chief,
Journal of Usability Studies

The following annotations were made directly to the PDF I submitted and sent back. Context has been lost as it was not useful to print that PDF in full in this appendix, as the paper was never published. The comments are extracted here only to demonstrate the level of negativity from the reviewer who clearly did not rate my paper. His full report follows these annotations.

(JUS2, 2013) Reviewer #2

Page: 1

- You should probably let the reader judge if it is clever. Using this kind of language can sometimes turn off some readers.
- The paper requires serious editorial work in terms of the language use and effective writing.

Page: 2

- Based on what you say it is simplistic?
- What is 'it' refer to?
- The purpose of the paper is stated in several paragraphs so far in different words and directions. It would help if the paper has several purposes to have those summarized so the reader can easily follow what was intended by the authors.
- Too many repetitions of what this paper intends to provide. This should be integrated and summarized.
- Should provide the primary source of this.

Page: 3

- Such a claim need stronger substantiation
- Too many quotes. It puts extra strain on the reader, particularly those who are not familiar with this discipline. Considering the

readership of JUS I suggest the author explain those complex ideas in easier language, and one that would be relevant to the typical usability and UX professional.

Page: 4

- So far, a methodology is not clear at all.
- So far it is not clear how this is done
- Too colloquial
- The author keeps on promising what the paper will provide, but so far --- not much that is pragmatic and useful
- Looks like an incomplete sentence

Page: 5

- Nothing so far can help us understand this point that the author refers to as crucial.

Page: 7

- The quality of the images should be improved to facilitate the understanding of the example

Page: 8

- Why obviously?
- ???
- The entire intro was such that is hard to follow and does not really educate anyone who is not familiar with the discipline. Thus the author leaves the reader to figure out things on their own with what seems like a rather complex and very philosophical approach

Page: 11

- How does this clustering look like?
- Such as...??
- Still not clear why this is more 'real' than having some representations of persona or mental models?

Page: 12

- Results of what??

Page: 13

- This failed!!!

Date of Review: 10/10/2013

Please give detailed comments here or on a separate sheet to justify judgments and recommendations.

The paper represents a very bold attempt at introducing a different philosophical and conceptual perspective that can be relevant to UX design, and a qualitative methodology that could be applied to the practical aspects of the UX design work. I applaud the authors for "thinking out of the box" in this respect, and attempting to bring it to the usability and UX community. However, the paper has several flaws:

The author claims that the method proposed by the paper is superior to present methods such as developing personas and mental models in order to model and represent user experience. However, nowhere in the paper does the author provide evidence for such a claim. Thus, the unique advantages of the proposed methodology are not conveyed in a convincing manner.

There is a lengthy introduction on the discipline. However, the introduction is fragmented, with many aspects just being mentioned but not elaborated. It is hard to follow and understand if one is not familiar with the discipline prior to approaching the paper.

The paper has too many quotes. The quotes make it harder for the reader who is not educated with semiotics to follow and understand the argument.

Much time is spent trying to explain the philosophical and conceptual background but not enough on the practical aspects that interest the readership of JUS. The paper stops short of actually explaining and illustrating how the method could be applied to usability and UX design.

There are papers relating semiotics to HCI. These are not mentioned in this paper.

The paper is written with much colloquial language not suited for a scientific journal. In addition, my reaction is that it has a patronizing tone at times that could make some readers uncomfortable.

I think the paper in its present form should not be published in JUS. If the author wishes to educate the usability and UX design community about this different discipline and the associated method, the paper should be written in a way that novices in the discipline could understand. The examples should be clearer. The extension to UX design should be made explicit. And finally, editorial work is required with respect to the use of the English language in scientific writing.

2014 – Designing Interactive Systems Conference (DIS 2014)

In March 2014 I submitted a pictorial paper to DIS 2014 (see Appendix A, pp78-83). This special format paper, which was never published, was entitled *Visually Interpreting Experience*. The feedback I gained from four peer reviewers was interesting. Although it was rejected, the paper caused some debate and friction, which is evident in the reviewers remarks compared to their rating. There are some clear inconsistencies. Any of the main criticisms from the reviewers have already been discussed in chapters 3-5's critical incidents, and Chapter 6's discussion.

(DIS1, 2014) Reviewer #1

Reviewer: external
(scale is 1-5; 5 is best)
Overall Rating: 3
(Borderline: Overall I would not argue for accepting this paper.)
Expertise: 4 (Expert)

Relevance: 3 (Of little importance)
Originality: 3 (Significant contribution)

The detailed review

This pictorial describes a phenomenological method of interpreting visual results from user testing. The paper describes the various steps of the process in a mixture of images and text. The process described is long and complicated and it is unclear to me if it actually delivers an interesting set of experience data. Maybe the method would be easier to access with a more focused example of use. While I am very happy to see this type of process formalized and used within this community, this particular process appears to remain academically insular despite the industry-like branding.

Comments on Pictorial format

I cannot help to feel that this paper could easily fit into the exciting long paper format. The entire process as well as the cards themselves is surprisingly text-heavy, and it could be argued that the images support the text rather than the other way around.

(DIS2, 2014) Reviewer #2

Reviewer: external
(scale is 1-5; 5 is best)
Overall Rating: 2
(Probably reject: I would argue for rejecting this paper.)
Expertise: 3 (Knowledgeable)
Relevance: 3 (Of little importance)
Originality: 2 (Minor contribution)

The detailed review

Contribution

Visually Interpreting Experience claims to introduce a new method using visual interpretative techniques in "user" research. The method is called "Circle of Visual Interpretation." It entails seven steps and method cards--Moments, (*Object*, Context, Quality), Compositing, Revealing, Clustering, Revealing Structure, Final Interpretation.

Summary

There may be something to this work. There is no need to defend it as novel as the author(s) do--method cards are not novel. If these particular method cards and the ordering in terms of the seven steps are a helpful way for others to better understand visual experience that would be good enough. It is very had to evaluate this in the present form, without seeing/reading about an actual experience with a person ("user") in which something actually interesting about visual experience is actually learned.

Positives

These aren't just cards, they are "a strong theoretical ground that can be summarised as *hermeneutic-semiosis* as it synthesises hermeneutic phenomenology with Peircean semiosis in order to be able to produce findings as visual interpretations."

Negatives

These aren't just cards, they are "a strong theoretical ground that can be summarised as *hermeneutic-semiosis* as it synthesises hermeneutic phenomenology with Peircean semiosis in order to be able to produce findings as visual interpretations."

Revisions

- Even at 100%, the text of the methods card is not readable.
- I don't understand: "In the example we,Äôre following the touchscreen is flat, safe and benign, but the anxiety of beginning to use an unfamiliar device presents the quality of the experiential *object*." In what way is a touchscreen unfamiliar?

Comments on Pictorial format

Positives
The method purports to focus on visual interpretation which qualifies it in part for the pictorial format.

Negatives
The images are mostly unreadable. The method cards are not themselves visual in any significant way. There seems to be a confusion of gesture with visual language in the chart on p.6. This paper would have been more easily understood with more text explaining more examples of these cards in use for design research. The visuals in this paper itself do not really advance understanding, nor are they particularly professional images.

(DIS3, 2014) Reviewer #3

Reviewer: external
(scale is 1-5; 5 is best)
Overall Rating: 2
(Probably reject: I would argue for rejecting this paper.)
Expertise: 3 (Knowledgeable)
Relevance: 4 (Very important)
Originality: 2 (Minor contribution)

The detailed review

This is a walkthrough of a method of prompt cards for design. The cards themselves do walk through various conceptual points in design, like quality and context, and can be used to illustrate or give rise to concepts that might otherwise be missed in design practice. I particularly like how this system reflects on design, what people "thought/felt/did" in the process and how it composes a composite experience.

While the authors admit there is no space and time to dive into the concepts they forefront in the article, it leaves me thinking there is no place for any of it...especially in a pictorial style article. Semiosis, pragmatics, hermeneutics, and other trendy keywords are scattered on page 2 which really, don't help anything. Either address the hard philosophical question and methodological discussion or just remove it. In this case, page 2 is wasted and could have done more to frame the practice and the method. I also believe the authors have a "method" not a "methodology" - the latter being the study of methods.

So, it remains unclear if in fact the card reveals a detailed description of conscious experience as the author claims or if in fact it just reveals something else to observe to draw upon. But the method itself does force externalizations; it does ask for an evaluation or comparison which is beyond the scope as well for a pictorial. I believe the authors might do better to position a longer paper rather than a pictorial to adequately dive into what they are trying to present, or remove the larger phenomenological argument and focus on the visual method as practice (which is beyond the request of a simple revise and accept).
Comments on Pictorial format

The roman numerals to follow the article is a bit odd. Visually speaking, they should all be in the blue text, as it's easy to miss [i] as it's not. And [ix] describes the images. So why is it an image itself? Shouldn't I start with that as copy then refer to the images? The flow here is a bit odd. Further the overall visual narrative is a bit hard to follow and the text offers no clear help.

(DIS4, 2014) Reviewer #4 (Primary)

Through this Pictorial, the authors present and describe a phenomenological method of interpreting visual results from user research. In this, the authors propose the ,"*circle* of visual interpretation," methodology, which is aimed at supporting interaction design teams in the ideation phase. Ultimately, the authors aim to provide a step-wise description of the method through a case study of a user research project.

The goal from the onset of this Pictorial is lofty and I feel the authors ought to be commended for taking on such a project. It is also worth noting that this submission generated quite a bit of discussion. However, this discussion was completely in consensus that this Pictorial is currently not ready for publication. While the reviews do point out several criticisms that ultimately complicate the contribution of this Pictorial, which I will summarize, I want to state upfront that the authors do have some intriguing and provocative ideas, and, if reworked into a different form, they may offer great potential. From this framing, hope the feedback can be viewed as constructive and well intentioned.

R1 in particular shares this enthusiasm, pointing out that the content in this Pictorial feels situated to a long paper format as opposed to a Pictorial; it is undoubtedly text heavy and it does feels as though the images serve as supporting points for the text instead of the other way around.

Additionally, R2 notes that the cards, which are a core part of the contribution, are difficult to read and interpret in the way in which they are captured through images. R2 notes that the visual interpretation angle of this Pictorial makes it, in theory, acceptable to being submitted to this format. However, the images are difficult to read (i.e. not of a high quality) and there are conflations of gesture and visual (e.g., p. 6), these are indeed two very different things.

R3 is the most critical, making clear that the visual composition of this Pictorial in its current form does more work complicating its overall contribution than supporting it. R3 also raise more fundamental issues with respect to whether this work constitutes a methodology or method. Either are of course valid. This points to more evidence that perhaps in longer paper form these notion could be further fleshed out. In summary, this submission presents provocative ideas, but in several different ways needs additional work to bring it up to a level of impact that it likely can have.

2014 - The Design Journal (DJ)

In July 2013 before **The Circle of Visual Interpretation** project really began I submitted a fairly theoretical design paper to the *Design Journal*. This paper, which was never published, was entitled *Visual Communication: A Phenomenology of Signification for Interaction Design*. In June 2014 I received the

following two peer reviews. Any of the main criticisms from the reviewers have already been discussed in chapters 3-5's critical incidents, and Chapter 6's discussion.

(DJ1, 2014) Reviewer # 2:

I am assuming that the author(s) are at a relatively early stage in their engagement with theoretical material. I am also assuming that the author(s) have a background in *Visual Communication* practice and that they are looking to develop a user oriented research practice that will support them when working in the domain of interaction design. The enthusiasm that the author(s) have for the theoretical material that they engage with is apparent. Unfortunately there is little evidence that they have an adequate understanding of hermeneutic (interpretive) phenomenology to be drawing on this tradition in a publication at this stage. I hope the suggestions I make below will help the author(s) to develop their understanding of interpretative phenomenology; and to make some progress with regard their *object*ive of developing a methodology to support a user oriented approach to *visual communication* practice.

1. I strongly recommend working through the development of the research approach with reference to a body of data. This should help to keep the project on track. It should also make it easier for reviewers to give constructive feedback with regard to the development of appropriate methods, and the development of an appropriate rationale for the use of those methods.

2. If the author(s) intend to pursue their nascent interest in interpretive phenomenology (and I hope that they do as this is a tradition that has much to offer visual combination practice and design practice more generally), I would suggest that the author(s) engage with some of the secondary literature and resources listed below. This material is very accessible and should allow the author(s) to come to an understanding of some of the core concepts of this tradition.

Reckwitz, A. (2002). Toward a theory of social practices: a development in culturalist theorizing. European Journal of Social Theory, 5(2), 243-263.

This is a relatively concise article that gives a great overview of key distinctions between research traditions broadly categorised into four categories: Practice theory; culturalist mentalism; textualism and intersubjectivism. In Reckwitz's scheme interpretive phenomenology would fall into the Practice theory category; while Husserlian phenomenology would fall into the category of culturalist mentalism. Some approaches to semiotics would fall into the category of textualism, some into culturalist mentalism and Habermas (who developed his ideas partly in response to Peirce) would fall into intersubjectivism. I really can't see that semiotics is at all compatible with interpretative phenomenology (or practice theory more generally) as semiotics takes as it's basic starting point the idea that interpretation is based on our reading of basic elements (signs) whereas interpretive phenomenology rejects all atomistic approaches to theorising about meaning, interpretation and understanding and instead draws our attention to the essential holism of our experience. Much of Heidegger's '*Being* and Time' can be read as a critique of the idea that we should start with signs as the basis for our understanding of interpretation and instead recognise that is our background experience of holistic situations, holistic configurations of media and so on, that make interpretation possible. It is only against this background experience that anything like a sign can temporarily come to the fore.

Ruspoli, T. (Producer). (2010). *Being* in The World. [Film] Retrieved from http://www.beingintheworldmovie.com

This is a feature length movie available for download at a very modest price. The movie provides a great overview of key concepts drawn from Heidegger's thinking. It includes interviews from a strong selection of commentators well versed in pragmatist interpretations of Heidegger's work: Hubert Dreyfus, Albert Borgmann, Mark Wrathall, Sean Kelly,Taylor Carman, Charles Taylor, Iain Thomson and John Haugeland

Dreyfus, H. (Producer). (2011, 14th June 2011). Phil 185: Heidegger's *Being* & Time. [audio podcast] Retrieved from http://socrates.berkeley.edu/~hdreyfus/185_s11/Audio.html

Dreyfus, H. L. (1991). *Being* in the World: A commentary on Heidegger's *Being* and Time, Division 1. Cambridge M.A. : MIT Press.

Hubert Dreyfus has been lecturing for many years on Heidegger's '*Being* and Time.' University of California, Berkeley have make these lectures available online although you might need to search around a little as they change the location of the lectures on the web form time to time. The MIT Press book covers these lectures as they were delivered in the early 90's. It remains a great introduction to Heidegger's work.

Kelly, S. (Producer). Later Heidegger. [Podcast] Retrieved from http://www.people.fas.harvard.edu/~sdkelly/SDK-4-PHI139.html

Sean Kelly has made his lecture series on Later Heidegger available on line. Kelly is a former student of Dreyfus. This is a strong lecture series.

Bernstein, R. J. (1983). Beyond *Object*ivism and Relativism: Science, Hermeneutics and Praxis. Philadelphia: University of Pennsylvania Press.

This text provides a very accessible introduction to Gadamer's work. I strongly recommend that the author(s) read this if they wish to pursue their interest in the *hermeneutic circle*.

Joas, H. (1993). Pragmatism and Social Theory. Chicago: University of Chicago Press.

Joas, H., & Knöbl , W. (2009). Social Theory: twenty introductory lectures (A. Skinner, Trans.). Cambridge, UK Cambridge University Press.

I highly recommend the work of Hans Joas to help the authors to gain a basic understanding of the relative positions of key theorists working out of philosophical and sociological traditions that are relevant to their study. Joas is a contemporary scholar who draws heavily on the American pragmatism (particularly the work of George Herbert Mead). He is well versed in interpretive phenomenology and draws strong parallels between the two traditions.

3. In section 2.3 (THE METHOD IN THE PHILOSOPHY) the author(s) review a very curious selection of literature.

They seem to be suggesting that this is the only literature where the relationship between phenomenology (as a methodology) and *visual communication* is investigated. A reasonably thorough database search will show that this is not the case. I suggest that the author(s) draw on a range of search terms including the names of key authors Heidegger, Gadamer, Merleau Ponty, the authors listed under point (2). Beyond searching for

literature indexed directly under *visual communication* and graphic design, the author(s) should also search for literature indexed under communication theory, visual arts, and/or design. Finally the author(s) need to recognise that there is a quite well developed body of work looking at the relevance of phenomenology to interactive design. I highly recommend undertaking searches within the Human Computer Interaction (HCI) literature.

4. Given that the author(s) seem to be struggling with the basic tenets of interpretative phenomenology, I started to ask myself why they were drawn to phenomenology in the first place. It seems one of the reasons might be that they are insufficiently well versed in the range of qualitative methodologies available to them.

They seem to be labouring under the misconception that phenomenology is the only qualitative approach to focus on the first person perspective (end of Section 3.1 INTERPRETING THE HIDDEN). This is not the case. The author(s) may want to investigate the literature on phenomenography (a tradition only loosely associated with phenomenology). A key focus of phenomenography is the identification of the range of conceptions (perspectives) that the cohort of people engaged in the research study bring to the understudying of a particular phenomenon. The nice thing about this approach, as opposed to the approach that the author(s) seem to be proposing, is that it doesn't try to consolidate lived experience into a single perspective but instead acknowledges that within any particular group there are likely to be a range of perspectives that members of the group bring to the situation. This will no doubt be the case in any but the simplest of interactions with any type of interface. I recommend the text below as a good general introduction to the practice of qualitative coding:

Richards, L. (2005). Handling qualitative data: a practical guide. London: Sage.

5. A second reason that the author(s) appear to be drawn to phenomenology is that they seem to think that the *hermeneutic circle* is a step by step approach that will enable them to verify a particular interpretation. The author(s) understanding of the *hermeneutic circle* is entirely at odds with the way in which this concept is developed within interpretive phenomenology. I refer the author(s) to the references listed under Point 2 and in particular the Bernstein reference. I encourage the author(s) to abandon all references to this concept until they have a much better understanding of the work of both Heidegger and Gadamer.

6. The author(s) do at times make reference to a valid reason for engaging with interpretative phenomenology. Interpretative phenomenology is an approach that aims to move beyond what is going on in conscious thought to find ways of accessing what is going on in the background - in our pre-conceptual, pre-thematised experience. That said I see nothing in the proposed methodology that addresses this aim. The classic strategy employed by Heidegger in *Being* and Time is to focus on what shows up during the course of various forms of breakdown in the normal flow of our experience. Merleau-Ponty draws on studies of patients experiencing various types of perceptual difficulty, the work of highly attuned artists, and the perceptual distortions made possible through various forms of technology. Some researchers in this tradition do make use of observation and interview. Here they look for inconsistencies between the dominant narratives used to make sense of the experience of the subjects of their research and cues about alternative orientations that are lived out (embodied, enacted) rather than consciously expressed. The author(s) might be interested in the following study:

Young, I. (1980). Throwing Like a Girl: A phenomenology of feminine bodily comportment, motility and spatiality. Human Studies, 3, 137-156.

(DJ2, 2014) Reviewer # 3:

Please supply review below, beginning with constructive comments.

This is an original, provocative and engaging submission. The paper largely reaches its stated aim to contribute to knowledge and provide a new framework for the consideration of *visual communication* of interaction design. The paper builds a convincing narrative and argument toward its position, however there are a few relatively minor issues which should be addressed prior to publication.

Please provide a list of key changes that the author should make to the manuscript during revision if invited to do so.

The paper would benefit from further proofreading, there are numerous typographical, grammatical and referencing inconsistencies throughout. Of more importance, however. are the following points in the sections of the paper:

2.3 The Method in the Philosophy

The drawing in of Shepard Fairey's work here is rather incongruous and does not provide sufficient evidence of the mishandling of the phenomenological methodology. Either replace with a more suitable precedent or provide further detail. Rick Poynor's (2007) Obey the Giant: Life in the Image World may be a useful guide here.

6.0 Summary

This is the least convincing section of the paper and is a fundamental and unsupported assumption that devalues what precedes it. More consideration should be given here to signpost the further research being undertaken and the implications for the potential application of the novel methodology developed and argued for throughout the paper as this section simply does this a disservice.

2014 – Interaction Designer Workshop Feedback

In 2014 I held two workshops with interaction designers. I never got to see any official conference workshop feedback forms for INTERACTION 14. I sent follow up emails and I received one reply that is featured below. I issued my own feedback forms for the second workshop at INTERACCIÓN 2014 and as a result I got four feedback returns due to the workshop over-running its time slot.

Workshop 1: INTERACTION 14, Amsterdam.

(Inobori, 2014)


(see Fig. E.1)

From: **Yuichi Inobori** [redacted]
Subject: Re: (smaller attachment file size) Follow up material to the Interaction 14 Circle of Visual Interpretation workshop
Date: 31 March 2014 04:24
To: Dave Wood dave@bazaar.me.uk

Hi, Dave.

Thank you for your sending workshop's handouts.

While I've joined in your workshop, felt very exciting and had useful experience.

Still even though I can't use your method well, I'll try to use it for my UX projects.

Regards,

Yuichi

(2014/03/29 1:07), Dave Wood wrote:

> DUPLICATED MESSAGE (smaller attachment file size)
>
> Hi,
>
> Thanks for attending my Circle of Visual Interpretation workshop at Interaction 14 last February. I haven't updated the blog as yet as I

See More

--
井登 拝

Yuichi Inobori

INFOBAHN Inc.
Vice President/Branch Manager, Kyoto Branch

Fig. E.1: INOBORI, Y. (2014) Email to Dave Wood, 31st March.

Workshop 2: INTERACCIÓN 2014, Teneriffe.

(WSP1, 2014)

(see Fig. E.2)

Visually Interpreting Experience: Circle of Visual Interpretation Methodology Tutorial Workshop
Means and Consequences…

Quick Reflections...

If you would prefer to complete this in Spanish or Portuguese please go to https://www.surveymonkey.com/s/MWN56D7 or scan the QR code.

Job Title: Phd student

Discipline:
Interaction Design ☐ User Experience ☐
HCI ☐ Other ☑ Please specify ACCESSIBILITY

On User Research:
As a professional what are your thoughts on the statement…
"You might want to believe that users know why they struggle, but they don't. It's not what users say. It's what users do that matters" David Travis, Userfocus, 2014.

I AGREE

On the Method Cards:
Out of the methodology which method card(s) stands out as the most useful to your future ideation phase, and why?
Card 1 ☒ Card 2a ☐ Card 2b ☐ Card 2c ☒ Card 3 ☒ Card 4 ☐ Card 5 ☐ Card 6 ☐ Card 7 ☐

Other Comments:

Thanks for your input.

Fig. C.2: Workshop Participant - WSP1, 2014

Workshop 2: INTERACCIÓN 2014, Teneriffe.

(WSP2, 2014)

(see Fig. E.3)

Visually Interpreting Experience: Circle of Visual Interpretation Methodology Tutorial Workshop
Means and Consequences…

Quick Reflections…

If you would prefer to complete this in Spanish or Portuguese please go to https://www.surveymonkey.com/s/MWN56D7 or scan the QR code.

Job Title: PhD. Student

Discipline:
Interaction Design ☐ User Experience ☐
HCI ☒ Other ☒ Please specify ARTIFICIAL INTELLIGENCE

On User Research:
As a professional what are your thoughts on the statement…
"You might want to believe that users know why they struggle, but they don't. It's not what users say. It's what users do that matters" David Travis, Userfocus, 2014.

IT MAKES SENSE

On the Method Cards:
Out of the methodology which method card(s) stands out as the most useful to your future ideation phase, and why?
Card 1 ☐ Card 2a ☐ Card 2b ☐ Card 2c ☐ Card 3 ☐ Card 4 ☐ Card 5 ☐ Card 6 ☐ Card 7 ☐

All of them, as they conform a cycle

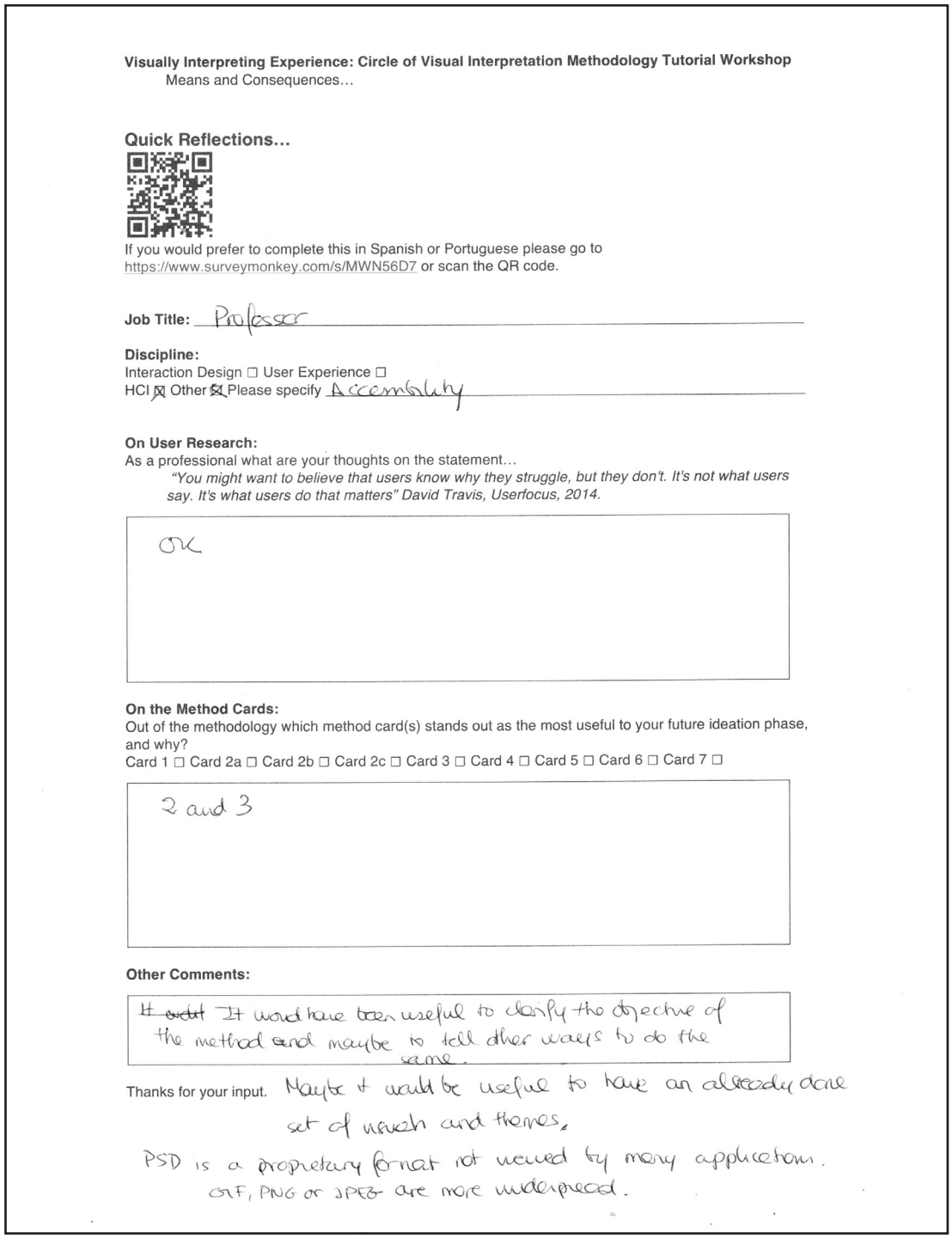
Other Comments:

Thanks for your input.

Fig. E.3: Workshop Participant - WSP2, 2014

(WSP3, 2014)

(see Fig. E.4)



Visually Interpreting Experience: Circle of Visual Interpretation Methodology Tutorial Workshop
Means and Consequences…

Quick Reflections...

If you would prefer to complete this in Spanish or Portuguese please go to https://www.surveymonkey.com/s/MWN56D7 or scan the QR code.

Job Title: Professor

Discipline:
Interaction Design ☐ User Experience ☐
HCI ☒ Other ☒ Please specify Accessibility

On User Research:
As a professional what are your thoughts on the statement…
"You might want to believe that users know why they struggle, but they don't. It's not what users say. It's what users do that matters" David Travis, Userfocus, 2014.

OK

On the Method Cards:
Out of the methodology which method card(s) stands out as the most useful to your future ideation phase, and why?
Card 1 ☐ Card 2a ☐ Card 2b ☐ Card 2c ☐ Card 3 ☐ Card 4 ☐ Card 5 ☐ Card 6 ☐ Card 7 ☐

2 and 3

Other Comments:

~~It was~~ It would have been useful to clarify the objective of the method and maybe to tell other ways to do the same.

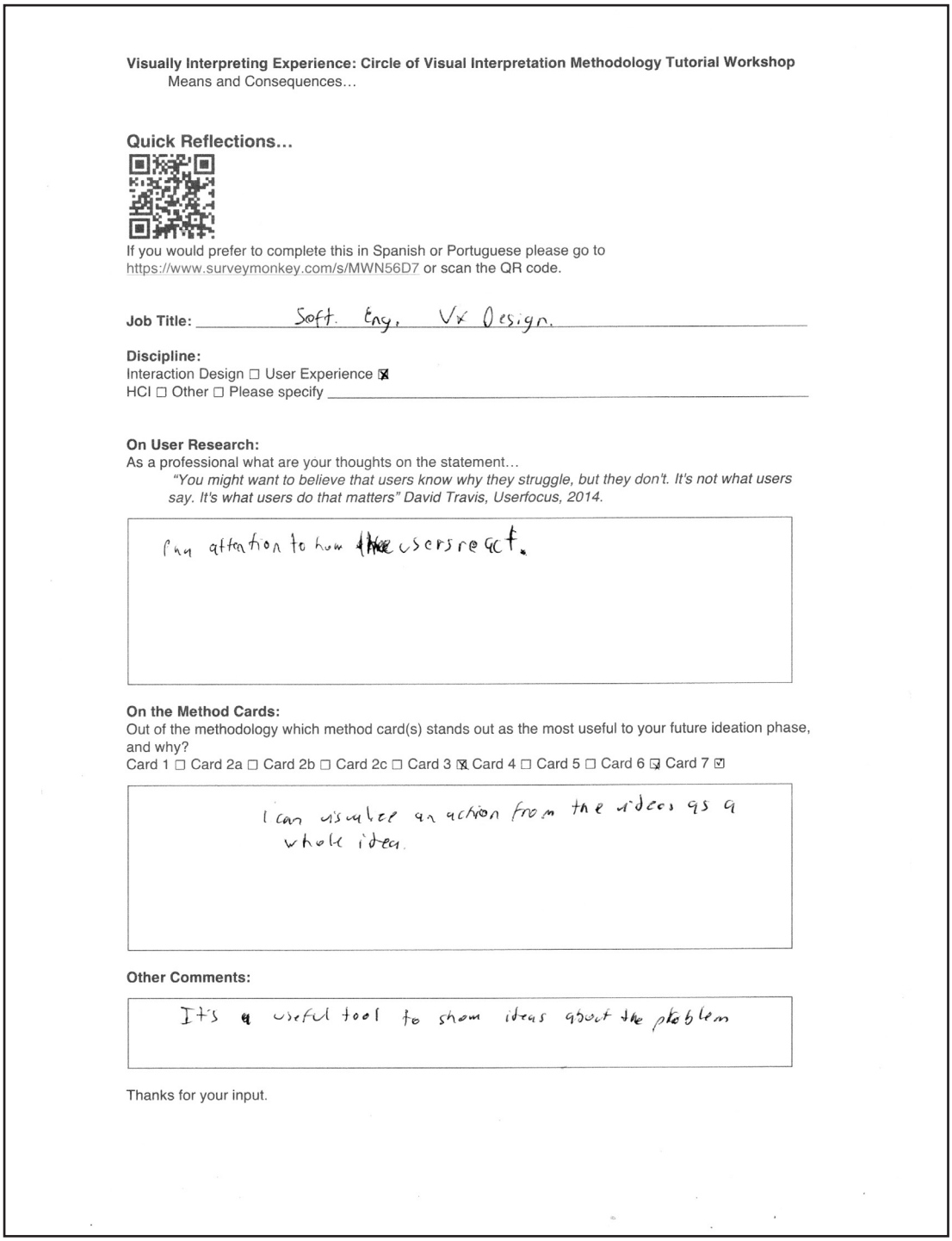
Thanks for your input. Maybe it would be useful to have an already done set of words and themes.

PSD is a proprietary format not viewed by many applications. GIF, PNG or JPEG are more widespread.

Fig. E.4: Workshop Participant - WSP3, 2014

(WSP4, 2014)

(see Fig. E.5)



Visually Interpreting Experience: Circle of Visual Interpretation Methodology Tutorial Workshop
Means and Consequences…

Quick Reflections…

If you would prefer to complete this in Spanish or Portuguese please go to https://www.surveymonkey.com/s/MWN56D7 or scan the QR code.

Job Title: Soft. Eng, Vr Design.

Discipline:
Interaction Design ☐ User Experience ☒
HCI ☐ Other ☐ Please specify _____

On User Research:
As a professional what are your thoughts on the statement…
"You might want to believe that users know why they struggle, but they don't. It's not what users say. It's what users do that matters" David Travis, Userfocus, 2014.

Pay attention to how the users react.

On the Method Cards:
Out of the methodology which method card(s) stands out as the most useful to your future ideation phase, and why?
Card 1 ☐ Card 2a ☐ Card 2b ☐ Card 2c ☐ Card 3 ☒ Card 4 ☐ Card 5 ☐ Card 6 ☑ Card 7 ☑

I can visualize an action from the videos as a whole idea.

Other Comments:

It's a useful tool to show ideas about the problem

Thanks for your input.

Fig. E.5: Workshop Participant - WSP4, 2014

Appendix F: Published Peer Reviewed Papers.

The previous appendix featured critical feedback that helped me to develop my thesis for my PhD from reviewed papers that were never published. In this final appendix five papers that were accepted for publication during the time I was developing my PhD thesis are duplicated. Each of these featured papers was also peer reviewed, but because each paper was accepted for publication I didn't include them in Appendix C. All five papers have a direct influence on my thesis, and before the papers are presented as published I will give the reader some brief context to how they relate to my dissertation.

2009 - Interaction Design: Where's the Graphic Designer in the Graphical User Interface?

This paper was originally written as part of my PhD research module in the first semester of my PhD's first year. I submitted it to IASDR 2009 and the peer reviewers accepted it without revision. The paper was essentially an early contexualisation of what I knew and what I discovered about the current role of graphic designers working in interaction. By writing this paper, and then presenting it to an audience of international designers that included Prof. Don Norman, I began to separate my area of interest into Interaction Design rather than interface design that some define as interactive design. This paper also was later instrumental in gaining a book commission from Bloomsbury to right a separate book on interface design. My paper is available from the following source ans it is also archived on my academia.edu profile.* According to academia.edu's analytics (accessed 29 April 2015) the paper has been seen 3,518 times and downloaded 214 times.

WOOD, D. (2009) Interaction Design: Where's the Graphic Designer in the Graphical User Interface?. In: The Proceedings of the International Association of Societies of Design Research. IASDR 2009, 18-22 October, Seoul, Korea. Republic of Korea, p135.

Paper presented at: IASDR 2009 Conference, Seoul, South Korea, International Association of Societies of Design Research 20th October 2009.

* https://northumbria.academia.edu/DaveWood/

2010 - Moving Across The Boundaries: *Visual Communication* Repositioned In Support of Interaction Design

This paper was the first real attempt at finding my thesis from within the literature reviews I was making. At this point in my research I was still firmly within researching HCI and trying to find a synergy with *Visual Communication*. With this paper I found my direction. This was initially through the HCI research into the *Aesthetics of Interaction*. From this paper, which I presented in the presence of my supervisor Prof. Chris Speed, I was able to articulate my research direction to both an international audience and my supervisors. As a result my third supervisor Dr. Mark Wright introduced me to the Harrison paper on the third HCI paradigm of a phenomenological matrix that proved central to my final thesis. My paper is available from the following source ans it is also archived on my academia.edu profile.* According to academia.edu's analytics (accessed 29 April 2015) the paper has been seen 418 times and downloaded 28 times.

WOOD, D. (2010) Moving Across The Boundaries: *Visual Communication* Repositioned In Support of Interaction Design. In: J. BONNER, M. SMYTH, S. O'NEILL, and C. MIVAL, (Eds). The Proceedings of Create 10: the Interaction Design Conference, June 30 - July 2nd, 2010, Edinburgh, UK. London: The Institute Of Ergonomics And Human Factors, BCS The Chartered Institute For IT Interaction Specialist Group and Edinburgh Napier University, pp27-32.

Paper presented at: CREATE 10 Conference, Edinburgh, UK 30th June 2010.

2011 - A Can of Worms: Has *Visual Communication* a Position of Influence on Aesthetics of Interaction?

After writing a paper about contexualising *Visual Communication* with HCI, in this third paper I began to outline the concept of a *Visual Phenomenological Methodology* (**VPM**). This paper essentially heavily influenced my PhD's contextual review section on phenomenology and design. My paper is available from the following source ans it is also archived on my academia.edu profile.* According to academia.edu's analytics (accessed 29 April 2015) the paper has been seen 712 times and downloaded 49 times.

WOOD, D. (2011) A Can of Worms: Has *Visual Communication* a Position of Influence on Aesthetics of Interaction?. Design Principles and Practices: An International Journal. 5(3). pp463-476

Paper presented at: Design Principles and Practices 2011, Sapienza University of Rome, Rome, Italy. 2-4 February 2011.

2011 - Running in Hermeneutic Circles: A *Visual Phenomenological Methodology*

This paper was actually an extended abstract that outlined a presentation at the symposium. In the paper and the presentation I built upon the third paper and outlined in more detail the **VPM**. From the discussion around my presentation I was introduced to alternatives to phenomenology, but these were not directions that I wished to pursue as they were merely favourite methodologies of delegates and I had a direction that Harrison and Dourish had laid out. A side note to this presentation was that this symposium was held at Northumbria University, my current institution, and my current Head of Department was in the audience of the symposium. He remembered me at my interview, and now I work there as a Senior Lecturer in Graphic Design. My paper is available from the following source ans it is also archived on my academia.edu profile.* According to academia.edu's analytics (accessed 29 April 2015) the paper has been seen 1,330 times and downloaded 128 times.

Paper presented at: Second Interaction Symposium on Culture, Creativity, and Interaction Design, Northumbria University, Newcastle, UK, The BCS Conference on Human-Computer Interaction, 4-5th July 2011

2014 - Visually Interpreting Experience: Circle of Visual Interpretation Methodology

This final paper published before I submitted my PhD dissertation was a short paper published in the proceedings of Interacción 2014, which contexualised my second workshop that I held as part of the conference. My paper is available from the following source ans it is also archived on my academia.edu profile.* According to academia.edu's analytics (accessed 29 April 2015) the paper has been seen 82 times and downloaded 45 times.

WOOD, D. (2014) Visually Interpreting Experience: Circle of Visual Interpretation Methodology. In: The Proceedings of Interacción 2014 XV International Conference on Human Computer Interaction, 10 - 12 September, Puerto de la Cruz, Tenerife, Spain. ACM, New York, NY, USA, Article No.: 100.

Interaction Design:
Where's the graphic designer in the graphical user interface?

Dave Wood*

** PhD Research Student, Edinburgh College of Arts/*
Course Leader BA (Hons) Entertainment Media Design
St Helens College, College of Arts
United Kingdom
dave@bazaar.me.uk

Abstract

This paper will, from a visual communication perspective, explore the role over the last 40 years of the graphic designer within graphical user interface design. I am specifically interested in how graphic design has had to respond to designing for interactions in the new digital media. To do this I will also examine how interactive design has impacted upon graphic design and vice versa. In order to conclude on the present position I will explore the roots and formation of the graphic design discipline formed sixty-six years prior to the formation of the new discipline of interaction design. There are parallels between the two. Focusing upon a literature review of academic visual communication literature this paper scrutinizes limited writing within it on graphical user interfaces. It analyses and evaluates the visual communication literature dialectically through a filter of interaction design writers' selected writings. In tone and structure this paper is designed to address a proposition that has seldom been addressed fully from my chosen perspective. My research position is shaped by a desire to explore the graphic aspect of graphical user interfaces rather than from the technology/HCI/computer science disciplines. This paper adds to the discourse on how interactions can be facilitated by better graphic design in order to expand visual communication literature and application to practice. The conclusions in the paper set the context for a deeper enquiry into graphical user interfaces from a visual communication perspective, as part of my continuing PhD research.

Key words: Interaction and Interface Design, History, New Media

1. Introduction

Can't see the wood for the trees? Where's Wally?
In the 21st century, within the design of graphical user interfaces for online and offline digital products, where have all the graphic designers gone?

In this paper I will explore, from a visual communication perspective, the question of locating the role of the graphic designer in graphical user interface (GUI) design. In the seventies and eighties graphic designers Norm Cox, Karen Elliott and Susan Kare all worked upon GUIs for computer companies such Apple, Xerox and Microsoft. Working in software development, they opened up a whole new field for graphic design, designing

icons, menus and windows[1] in collaboration with their computer science colleagues. During the early development of GUIs for the PC[2] it was the responsibility of graphic designers to organize and fine-tune *"the visual relationship between interface and screen design"* [4]. But how did this field develop to the present day. To understand this I will contextualise graphic design with interaction design in order to spotlight differences and parallels to interaction design. Finally I will conclude and answer where the graphic designer are currently located in the design of GUIs. In the next section of this paper I will review the academic literature and position the exploration of my opening proposition.

2. Literature Review:

The academic visual communication literature that deals with interaction design is modest, whereas interaction design literature from its science root is abundant. Academic papers on interactivity, human factors, cognitive psychology, Human-Computer Interaction (HCI) are available within specialist journals and conference publications. Experts such as Donald Norman and Brenda Laurel are prolific commentators upon human factors and interface design respectively, each writing and editing seminal books upon interactivity. Bill Moggridge, a pioneer of interaction design, has edited and written a definitive book on interaction design history, Designing Interactions. But actual visual communication literature is scant in comparison. Graphic designer and critic Michael Rock bluntly puts it *"We don't have a couple of centuries' worth"* of design books [24]. Rick Poynor, design journalist & founder of Eye magazine, takes Rock's point further, *"Graphic design as a profession has long had an aversion to theory"* [24].

The sources from this literature search form the basis of my findings. Sources I have identified and used principally focus upon Poynor, supported by writings from graphic design critics Rock, Bruinsma, Burgoyne, O'Reilly, Crowley, Macdonald, Frascara, Heller, and new media journalists Aymer and Roach. The findings and statements located from this literature I have dialectically tested against sources from the historicity of GUI development by Perry and Voelckner and Johnson et al, and selected writings by Norman, Laurel and Moggridge. Blog postings by HCI expert and writer of Apple's HCI guidelines Bruce Tognazzini were also referenced.

3. Interaction Design and the Graphic Designer:

As a discipline interaction design has only been around for 20 years, and it is still defining its interdisciplinary boundaries and theoretical foundations. Interaction design is about designing interactive products with human behaviour in mind, solving specific problems of how a human can interact with technology. The term to define this new design discipline was coined by Bill Moggridge[3] in the late 1980s. Moggridge wanted to *"find the equivalent of industrial design within the electronic and software world (…) that's the side of it that I wanted to try and fill with interaction design."* [3]

Interaction designer Dan Saffer summarizes his discipline as *"It wasn't product design[4] exactly, but they were definitely designing products. Nor was it communication [graphic] design, although they used that discipline's*

[1] *"to create a consistent quality in the graphics that is appropriate to the product and makes the most of the given medium"* [10]
[2] I use the term PC to refer to all personal computers running any GUI-based operating system (MAC, Unix or Windows)
[3] Bill Moggridge – IDEO co-founder
[4] Drawing upon knowledge of abilities and limitations of human manipulation of physical objects, product design has informed and shaped the development of interaction design. Cognitive psychology and ergonomic shaping combine to create usable physical products.

tools as well. It wasn't computer science either, although a lot of it had to do with computers and software" [25]. Interaction design was a gestalt of these disciplines and explored human behaviour interacting through the design. Theoretically it shares HCI research with GUI design that had a slightly longer pedigree and its roots were firmly within computer science. The human factor at the heart is the raison d'etre of the design process. Neither the technology nor the visual design should be paramount it is the user that is. The user wants to just use the technology[5] to perform the task they need to complete.

Human Factor expert Don Norman outlines four principles of good interaction through interfacing with a tool. They are applicable whether it is a form of GUI or a physical tool. Conceptually the user must be able to form a model for what the interface offers to do. The functions of the interface must be cognitively mappable to ensure ease of use, knowing what to do for each task. Once performed the result of the users actions in operation of the interface must be fed back. The interface itself must be visible to achieve all of the above [17]. These principles are what Bill Verplank[6] refers to as 'know' (cognitive mapping and understanding paths), 'do' (using the interface's functions and the user taking control), and 'feel' (aural, visual and even tactile feedback) [16]. Since the early days of software GUI design, it had been the graphic designer who had responsibility to *"provide appropriate visual order and focus to the screen"* [10] within an interdisciplinary design team. It is prejudicial against the interdisciplinary nature of designing interactions to see graphic design as a 'key' discipline in the development of interactive products. Graphic designers, notes HCI expert Bruce Tognazzini, are limited to the interface's *'surface'* - how it looks and the design strategy behind communicating the content structure [28]. Gillian Crampton Smith, former school director of Interaction Design Institute Ivrea, sees graphic designers' role as more involved in the interactive design process *"designing what a package is and what it does, and then designing what it will be like"* [1]. Crampton Smith, a former graphic designer within software development is well placed to acknowledge the role graphic designers can and do play in interface design. The visual language of interaction design is built upon design axioms inherited from graphic design, learnt over decades of designing for print.[7]

Unfortunately there are misconceptions held by many professionals outside the discipline as to what a graphic designer does. They have been perceived as *"decorationists, elitists or servants of the consumerist machine"* [11] and their work as *"frivolous or shallow"* [18]. Over the last century graphic design is so *"deeply ingrained in the texture of daily life that it is taken for granted"* [6]. It has become pervasive and transparent. Yet graphic design is actually serving its purpose - visually communicating a message or visually structuring the functions of an interface. In the next section I will be examining this issue.

4. Practice, Prejudice and Perception:

In this section I will begin to chart how the graphic designer has contributed to designing interactions. To do so I will summarize the context in which their role is located, their practice and misconceptions of how that practice

[5] David Liddle, designer of the Star GUI in the seventies, has identified that we are currently in the *consumer* stage of technological development. This is the third of three stages, where non-experts make a decision to use digital products during the pursuit of their everyday lives. The first stage is *enthusiast* and the second stage is *professional* [16].

[6] Bill Verplank - MIT, Xerox, Interaction Design Institute Ivrea, Stanford University

[7] "Much of the power of graphic design comes from a combination of visual 'movement', balance and delineation in a layout, the dramatic and subtle use of type, colour, space, line and image, and high visual quality in typography and photography" [12].

is perceived. I will frame how they reacted to digital media's impact on their practice, before finally discussing where this leaves their professional role.

Graphic design, as we understand it, didn't become a discipline encompassing visual communication until 1922. It was American typographer and printer William A. Dwiggins who coined the term graphic design[8] *"to confer a loftier professional standing"* [9], that would push the skills to the fore of typographers, artists and designers working like artisans in printing, commercial art studios and type foundries. Filtered through a Modernist philosophy of 'form follows function", it really wasn't until the fifties, with its roots *"thoroughly implicated"* in consumerism[9] [6], that the discipline really began to assert itself with confidence. Graphic design became socially and environmentally commonplace, part of society's *"perceptual vernacular"* [18] due to the advance of capitalist consumerism. Through the fifties, sixties and seventies the discipline grew more confident in its abilities and successes. By the eighties graphic design had become ubiquitous, and the decade would be known as the 'design' or 'style' decade, both an accolade and a criticism.

Interaction design expert Brenda Laurel[10] reflects that labels such as *'dictators of style'*, *decorationists*, *elitists*, *'servants of the consumerist machine'* were unfair misconceptions of graphic designers' profession, marginalizing their contributions despite the pervasiveness of them within society. Most of its practice is subjective, instinctive and implicit, alternating between the *"consideration of objective information and intuitive leaps"* [7]. Graphic design, when designed well, can *"inspire a behavourial change"* in its audiences [8]. Unfortunately graphic designers do have a problem of remembering they are designing for an audience and not themselves. Issues of audience became problematic with the introduction of interactivity. All designers, but especially graphic designers, have been accused of *hubris*. The skill of the graphic designer is in the layout and control of the design elements to visually communicate, but with interactive digital media this design control was now in the hands of code and browsers. Designers lost focus, or vision, on how they could control the design process and the visual outcomes. They were unsure on how to apply their design methodologies to this new medium. A different 'mind-set' needed to be applied, from static to dynamic. Seduced by combining "*aspects and characteristics of other media"* and restricted by a traditional linear viewpoint on communication, graphic designers in the nineties began to retreat from GUI design [4], [5], [14].

In examining the ascent of the graphic design discipline through the 20th century it has led to examination of what role, traditionally, a graphic designer occupied. The possibilities of what graphic designers could be involved in the digital world greatly expanded in the nineties away from print[11]. The mainstream flirted and then lost interest. Collectives, individuals and companies such as Anti-rom, Tomato, The Designers Republic and Sunbather, pointed a way for design to embrace interactivity, motion and film [20]. Ironically by embracing these new possibilities graphic design began to obscure its own discipline's identity. In the next section this will

[8] In spite of Dwiggins' best efforts, the term graphic design has become interchangeable with the terms visual communication, communication design, and information design.
[9] It is therefore understandable that a commonly perceived notion of a graphic designer solely as a problem-solver of design solutions for clients.
[10] "*When their (graphic designers) work is directed toward the marketplace, they rarely participate in the 'research' that determines what product should be produced by whom – or why. When their work focuses on the investigation of design through form and process, they often stand accused of irrelevance or indifference."* [11].
[11] Graphic design as fashion; in motion; as interactive; with music.

be explored in greater detail.

5. Repositioning of Identities:

Locating the graphic designer in GUI design may be just a problem of semantics. In the previous section the obscuring of the discipline's identity was raised. This section will explore how graphic design has reacted to the new digital media. In the conclusion that follows the results of that reaction will be addressed.

In 1984 Apple launched the Macintosh PC with the first consumer GUI, causing a design revolution. The development of the GUI had created a new field for graphic designers to master. With the increased processing power and ease of use of PCs during the eighties and nineties, graphic designers in interface design were still only a small sub-discipline of the main print-based parent. It wasn't until the nineties and the rollout of the internet, smart phones and PDAs that mainstream graphic designers would re-enter the area of interactivity. In retrospect, during the nineties many graphic designers flirted with the web and digital devices and then appeared to abandon them due to *"low resolution computer screens and its severe limitations of bandwidth and display technology"* [4] to developers[12]. The web offered new opportunities for graphic designers but they were slow to develop their influence onto it. This meant, *"that individuals from other disciplines and backgrounds had plenty of opportunity to influence the field"* [13] and influence it they did. Web design critic Nico Macdonald observes that these individuals from computer science, cognitive psychology, and industrial design *"came to their new discipline with a less restricted view of its boundaries or possibilities than graphic designers"* [13]. This new discipline of interaction design had become identified as the main influence for developing all forms of GUIs. Graphic designers had lost the influence initiative. Developers had begun to acquire 'design skills' as a result of the very democratisation of production software the eighties GUIs brought. By the time that Macromedia Flash arrived offering graphic designers the illusion of control over their design whilst being interactive, it was too late [12]. Graphic designers had failed to truly understand that the user was at the heart of this new media. The failure of dotcom golden boy Boo.com in 2000 was extremely detrimental to graphic design[13]. The development of new design thinking had now been taken over by interaction design, resulting in graphic design as *"a discipline on the move"* [18], repositioning itself. Since the late nineties the status of graphic design as a pure discipline has been undergoing re-evaluation. This could be interpreted as a negative fragmentation of the discipline, but it is a re-strengthening of graphic design's roots. Modernist progenitors of the discipline such as Rodchenko, Lissitzky and Moholy-Nagy had naturally *"moved freely across the boundaries"* in the twenties and thirties *"that later, more professionally-minded generations attempted to cement in place"* [22]. Dwiggins' term of graphic design may have raised a collection of visual communicators from artisans into a profession in the early 20th century, but it had actually 'cemented' them into a fixed discipline that was biased towards print. *"If 'graphic design' now strikes some designers and design-watchers as too rigid a term, this is partly because it sounds like a largely technical procedure, but particularly because it fails to suggest the expanded possibilities of contemporary visual culture."* [20]. In the final section this

[12] "British designers who did engage with web design sooner rather than later included Neville Brody and Research Studios (founded in 1994), Malcolm Garrett and AMX (founded in 1994), Tomato, The Designer's Republic, Tim Fendley and Robin Richmond of MetaDesign London (…) Despite these few admirable in-roads, the wider influence exerted by traditional practices of print media tended to be negative rather than positive." [13]

[13] *"'Boo.com was a victory of concept of form over concept of use,' argues industry veteran Dorian Moore. 'That site killed conceptual design. After that the focus moved to usability and efficiency.'"* [13]

repositioning will be addressed and the question of locating the graphic designer in GUI design will be answered.

6. Conclusion:

As graphic design history has revealed, the discipline that Dwiggins named[14] 86 years ago knew no bounds when it came to working with other forms of media. The orthodoxy of the commercial print world subjugated many 'mainstream graphic designers' with its reliance on Modernist order over typography and layout, but design is a process and not an end in itself. Graphic design was an *"open", "diverse", "inclusive"* and *"inventive"* discipline [22], constantly challenging its own established 'rules'. Designers who chose to design for interactivity had learnt, post-dotcoms, that they couldn't innovate and experiment new graphic languages for interfaces without developing, or accepting a new mind-set towards deepening their knowledge of human factors. Through early interface experiments they learnt from failure and errors the rule that the user is king. They learnt to collaborate within multi-disciplinary teams of experts with different skill-sets to achieve their designs. Graphic design had repositioned itself as a discipline. In regard to designers who identify themselves as belonging to the 'graphic design' discipline, they also find that the discipline is open enough for designers to refer to themselves by whatever descriptive title they saw fit.

In the early days of GUI design within software Cox, Elliott and Kare all referred to themselves as graphic designers working within a multi-disciplinary team. Crampton Smith, another graphic designer working with code and interface design *"moved freely across the boundaries"*[15] between disciplines eventually to move into interaction design. So in the 21st century, within the design of graphical user interfaces for online and offline digital products, where have all the graphic designers gone? It would be inaccurate to state they where always there but we had just lost sight of them. Interaction design as a discipline has certainly attracted designers, trained as graphic visual communicators, to change disciplines. Other designers remain identifiable as graphic designers working with interactivity. Semantically it is unimportant which discipline or what title designers of interaction identify with. What is important is whoever designs a GUI they remember Norman's simple rules, and human who will use the GUI. As Bruce Tognazzini summarizes, "when the balance between interaction designer and graphic designer is skewed, you are likely to end up with a [GUI] that is really pretty to look at, but unusable" [27]. So to answer the proposition 'Where's the graphic designer in the graphical user interface?' I conclude that the graphic designer has matured enough to not want to step forward to take credit from the multi-disciplinary team they design within, and would humbly turn the question around to ask "where does the user wish to be? "

[14] In much the same way as Moggridge did with interaction design 66 years later.
[15] [22]

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Moving Across The Boundaries: Visual Communication Repositioned In Support of Interaction Design

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Abstract: This paper is a theoretical contribution to the research area of Aesthetics of Interaction, but from a Visual Communication perspective. In order to convince those that still see Visual Communication as merely style and artifice, and an internalized and subjective design process, I will use the theses of Dourish 'Embodied Interactions' and McCullough's 'Digital Ground' to connect to current HCI research. A Pragmatist philosophical position will be adopted from which to explore this Phenomenological area. This will present the design discipline from a fresher perspective of intellectual, considered and rhetorical discourse, into a richer understanding of the discipline by dispelling two unhelpful myths. Then an argument can be made to reposition Visual Communication as a stronger influence upon Interaction Design.

Academic, Aesthetics, Interaction Design, Phenomenology, Practice, Semiotics, Visual Communication.

1. INTRODUCTION

This paper focuses upon resolving a current bifurcation of two influential disciplines upon Interaction Design between Human-Computer Interaction (HCI) and Visual Communication. Over the last quarter of a century the development of Interaction Design has grown under quantitative, functionalist influences. But in Bill Moggridge's original vision for the emerging design discipline of Interaction Design, it wasn't all to be about procedural scientific processes.

Moggridge wanted the new discipline to:

> "be concerned with subjective and qualitative values, (Interaction Design) would start from the needs and desires of the people who use a product or service, and strive to create designs that would give aesthetic pleasure as well as lasting satisfaction and enjoyment." (2007, p14).

With a purely procedural, quantitative influence the balance has dipped away from '*aesthetic pleasure'* towards functionalism and usability. In doing so aesthetics has been viewed as '*inversely proportional*' to usability (Ahmed et al., 2009). One of the issues with different disciplines, especially with a quantitative/qualitative divide, is agreeing what constitutes knowledge, methodology and axioms. In one discipline they can be seen as acceptable and in another discipline unsound.

> "The boundaries of a discipline mark not only what falls within its breadth but also what the field excludes, what it bars." (Lupton & Miller, 1999, p66).

As the visual aspects of design do not reveal themselves through quantitative research methods, there has been a dismissive attitude to aesthetics because the emotional aspects of its influence can't be measured but judged (Dewey, 1980, 320).

But through new theses that explore embodied interaction (Dourish, 2004) and the emerging aesthetics from the experience (Fiore et al., 2005)(Petersen et al., 2004), that functionalist dip is being rebalanced towards an embodied and an aesthetic experience (Dewey, 1980) (Shusterman, 1992). Visual Communication, as a design discipline, has had problems in the past working with interactivity (Wood, 2009) but with Harrison's new HCI Phenomenological paradigm (2007) to connect with, it can help towards re-balancing the influence equilibrium, and meet HCI at least halfway, especially in researching the *Aesthetics of Interaction*. This paper continues my theoretical ground for a practice-based PhD in Visual Communication on the *Aesthetics of Interaction* and explores how Visual Communication can now be repositioned in support of Interaction Design.

2. AESTHETICS OF INTERACTION

2.1 Aesthetics

Aesthetics cannot be understood by quantification or reduced to simplified procedural scientific processes. First impressions of aesthetic experience within humans may be affective (Tractinsky, 2004, p13) - we feel the experience before we understand it. Aesthetic experience can therefore be explained as spanning the mind and body into a fully embodied experience. It is Phenomenological. In re-framing aesthetics within a Pragmatist philosophical rather than a Classical

position, the research into *Aesthetics of Interaction* can begin to share a common ground between HCI and Visual Communication. The research by Tractinsky, Petersen and Harrison is helping assuage some of the schism and misunderstandings between two disciplines of influence upon Interaction Design. The use of a Pragmatist philosophical position on aesthetics rather than a Classical or Analytical position in this paper will place Visual Communication beyond the aesthetic consideration of just the surface. Classical Aesthetics is analytic and places the human as a processor constructing disembodied independent realities that are based on perception and critical cognition. This places a creator of the aesthetic work as someone identifying and creating works that can be appreciated through immediacy, and understood from direct perception by the viewer. This disembodied, cognitive approach to aesthetics leaves out an important factor that Dewey in the early 20th century argued should be considered. Experience. With Dewey's thesis, later continued by Shusterman, he argued that we do not see aesthetics solely cognitively but experience it emotionally as embodied subjects. Therefore a Pragmatic position is more able to accommodate an embodied experiential understanding of aesthetics beyond the surface and into use, taking into account emotion, intellect and engagement.

2.2 Visual Communication

As Frascara (2004, p4) argues Visual Communication is a more embracing term than Graphic Design to define the design discipline. It places the emphasis upon the method (design), the objective (communication) and the medium (visual) of this discipline, rather than just the creation of graphic forms (outcomes). By adopting this disciplinary term to argue for its repositioning, I can avoid a perceived problem of graphic design as '*decorationists/dictators of style*' (Laurel, 2003). Graphic design is now so "*deeply ingrained in the texture of daily life that (it's) taken for granted"* (Crowley, 2004). This has led to an unfair misconception that Visual Communication can only become involved at the end of any engineering or construction process to do the '*aesthetic bit'*, the artifice. This misconception leaves out so much of the intellectual design process, and the emotional and social contexts (Kolko, 2010, p102) that Visual Communication draws from. Visual Communication is beyond mere decoration or artifice. It is more than an aesthetic of form or surface. The graphic designs created are not merely schematics for production or construction, but for use. The designs are not to be consumed by mere visual fetishisation (Shusterman, 1992, p16), but from engagement. The design outcomes are varied in scale, use, and material, but are rhetorical in construction. Graphic designs are not '*passive'*; they are designed to make the 'receiver/user/viewer' act. They may be so ingrained in our everyday, westernised life that they are taken for granted as 'visual noise', but the designs are used everyday in some form or other. The combination of text and image manipulated by a Visual Communication designer for maximum effect, communicates a message semiologically using signs and codes. Depending upon the message, and the semiological manipulation of the design, the understanding of it can be constructed with a denotational or connotational meaning. Barnard builds upon Barthes when he says that a denotational meaning requires at least a low-level, culturally specific knowledge from the 'receiver/ user/viewer'. The connotational meaning is deeper and requires the 'receiver/user/viewer' to contribute to the construction of the meaning (p36). This is an affective contribution; it is emotional, cognitive, interpretive, and phenomenological. It cannot be reduced to a procedural process of measurement. It is an aesthetic experience that goes beyond the surface into use.

2.3 Phenomenological Position

When discussing *Aesthetics of Interaction* the HCI point of view must be positioned. Harrison *et al*. (2007) describe three paradigms of HCI. The first paradigm located itself firmly within an objective and functional view of design. The second paradigm focused upon a "*central metaphor of mind and computer as symmetric, coupled information processors"*. The first two paradigms are a traditionalist point of view, but Harrison et al. argue that HCI has now entered into the third intellectual paradigm in the 21st century. HCI is developing from a position of '*objective knowledge*' into a position from where knowledge arises from '*situated viewpoints*'. They term this a *'Phenomenological Matrix'*. This places the Interaction Designer into a phenomenological position of design enquiry, and nearer Visual Communication methodologies. They build upon McCullough's *'Digital Ground'* and Dourish's *'Embodied Interaction'* theses. Dourish suggests that meaningful experiences are situated within, and shaped by a person's immersion within the experience. McCullough develops the argument that actions are shaped by their contexts and that opportunities for participation become available through cognitively encountering them in a grounded, situated way. Shaped peripherally from possible affordances rather than directly imposed choices, the meaning of an experience changes through interaction, where the understanding of the experience is cognitive, temporal, physical and social (Anderson, 2003). Behaviour therefore is also changed to accommodate the unfolding experience, and Visual Communication, like HCI, has an opportunity to inform aspects of the Interaction Design.

3 VISUAL COMMUNICATION AND BEHAVIOUR

3.1 Communicating Visually

Frascara's reframing of graphic design as an outcome releases Visual Communication to demonstrate it is deeper and richer than just the perceived design of the 'artifice'. Within its internalized design processes beats the semiological heart, where contextually the relational configuration of image and text is reliant on a direct relationship with the person interpreting it. The relationship is situated within the *internal* and *external* life of the graphic design - within "itself, the medium, the place and the time" (Bergstrom, 2008, p82). Frascara suggests that this is the design not of a product, object or visual, but the design of a "communicational situation" within which the design impacts on the knowledge, attitudes and behaviour of the 'receiver/user/ viewer'. Therefore there is an interactive element to graphic design, between message and 'receiver/user/viewer', through the use of the design over duration of time (p13). Bergstrom uses the terms *internal* and *external* to explain this. The semiological relationship of how the text and images are laid out in the design; the choice and use of typography; and the art direction of tone, colour, composition, flow and balance, are all the *internal* variables of Visual Communication that a designer manipulates.

There is a misconception that within a design the meaning is set by the designer, in fact what this refers to is a denotational meaning. An image or phrase in one social context may mean one thing to a 'receiver/user/viewer', and in another context something else. But the connotational message the target 'receiver/user/viewer' interprets leads only to construct the intended meaning. This visual perception is *"pervaded by our attitudes, values and experiences"* (Bergstrom, 2008, p80), and affect the process of interpreting the message. It is within this crucial area that the rhetorical nature of the visual communication engages the 'receiver/ user/viewer' proactively in understanding the designed message, relevant to their cultural context, to aid successful reception. Bergstrom refers to the designer operating from a *'perspective of proximity'* to decide upon the *internal* variables of a design and how they will perform once *externalised* in space and time.

3.2 Understanding and Interpreting

From a '*perspective of reception'* the 'receiver/user/ viewer' visually perceives a connotational meaning through their own cognitive and emotional interpretation based upon their own previous experiences. Through this *external* involvement of the 'receiver/user/viewer' in the reception, interpreting and comprehension of the message, behavioural change can be induced leading to an embodied action. Barnard presents the discipline of Visual Communication as a "*signifying system, within a much larger system*" as a visual constructor for how a "*society constructs and communicates meaning*" for itself (2005, p67). The visual organisation of the design itself must aesthetically be appropriate and congruent to *"establish clear relations of importance, inclusion, connection, and dependence"*, and then to "*guide the sequence in the perception of a message*" (Frascara, 2004, pp67-68). Aesthetics attracts and retains attention to communicate possible actions to facilitate interaction. It is certainly a Visual Communication aim to seek interpretation of a connotational meaning by a 'receiver/user/viewer', rather than their passive acceptance of understanding the surface denotational message. This is crucial to aid the construction of meaning that will then elicit the embodied action and change in behaviour that the design seeks. Understanding itself, Shusterman insists, should be understood as "*corrigible, perspectival, pluralistic, prejudiced, and engaged in active process*", and that understanding "*initially grounds and guides interpretation, while the latter explores, validates, or modifies that initial ground of meaning*". He further insists that even understanding on a highly intelligent level is "*unreflective, unthinking, indeed unconscious*" whilst proper interpretation is deliberate, critical and conscious thought characteristically involving a "*problem-situation*". Interpretation acknowledges that there may be other interpretations or meanings, whereas understanding merely accepts without engaging further (p133). Understanding is acceptance, but interpretation leads to behavioural change.

3.3 Facilitating the Behavioural Change

The cultural identity of the 'receiver/user/viewer' is influential to construct the meanings. Barnard argues that semiological communication is a "*cultural phenomenon, not an engineering problem*", and an aesthetic choice is culturally connected and carries meaning (p28). The rhetorical nature of Visual Communication, can afford a change in behaviour of the 'receiver/user/viewer', evoking a cognitive and emotional response. Performed at the semiotic level of communication, by manipulating the *internal* attributes within a design, the *external* properties of how the graphic design is experienced. Connotationally the target 'receiver/ user/viewer' will interpret and construct the meaning. The meaning is open to reception on an individual basis but the designer attempts to frame the message to be interpreted. Depending upon the individual they may not experience the full meaning. The aesthetics of surface attracts and retains attention, but it is within the aesthetics of use that the communication is made. It is through

individual response based on personal interpretation of a connotational message, that Visual Communication communicates to the population. Everyday a piece of graphic design will attract and retain attention leading to a communication being made. As a result, the Westernised world, makes everyday decisions - the context (*internal* and *external*) shapes actions. This is mostly performed subconsciously (hence being perceptively ingrained in visually cultured societies) on the periphery of everyday life. This is where Visual Communication's repositioning through Dourish's embodied interactions, and McCullough's situated digital grounding of it is evidenced. McCullough argues "*The disciplines of architecture and interaction design both address how contexts shape actions. Architecture frames intentions. Interactivity, at its very roots, connects those mental states to available opportunities for participation. These processes are ambient. Their benefits are to be found in the quiet periphery, and not in the seductive objects of attention.*" (p47) Visual Communication, beyond the aesthetics of surface ("*seductive objects of attention"*) also performs this role when aesthetics of use is taken into account. Visual Communication's ground is not in framing intentions like Architecture, but framing decisions.

4 MOVING ACROSS THE BOUNDARIES

There is a strong socio-cultural aspect to successful Visual Communication, and this cannot be measured within an objective and functional view of design, nor as coupled information processing. These are Harrison's first two paradigms of HCI and are from a position of '*objective knowledge*'. New HCI research from Harrison's third paradigm, a *'Phenomenological Matrix' (*a position from where knowledge arises from '*situated viewpoints*') build upon McCullough's *'Digital Ground'* and Dourish's *'Embodied Interaction'* theses. Petersen et al. (2004) develop a framework in which to explore aesthetics phenomenologically. Using the Pragmatist philosophical work of Dewey and Shusterman they locate an understanding of interactive aesthetic experience in the context in which it is experienced. As the paper has shown, from a Pragmatist philosophical position, an aesthetic experience is appropriated bodily and intellectually, emotionally and cognitively, and released during a dialogue with the interaction system or artefact. Petersen outlines three central aspects to define an aesthetic experience: a socio-cultural approach to aesthetics, designing for mind and body, and the instrumentality of aesthetics. In this final section I will demonstrate where Visual Communication is well suited to being repositioned in support of Interaction Design, and in doing so reduce the bifurcation with HCI.

4.1 Social-cultural Approach to Aesthetics

HCI has come to see that to understand interaction from an emotive, experiential, aesthetic position it must do so from a phenomenological socio-cultural context. Human interaction with an interactive system is participative, embodied within the physical world, and its constructed actions are situated in time and place. Therefore improvisation (or freedom) of use of the system or artefact leads to a variance between users of what experience they gain. This is due to their own intellectual appropriation from the consummation of the experience, and drawn from their social and cultural positions. From a semiological perspective this positioning, according to Barnard, generates meaning through the interaction between 'senders' and 'receivers', the interpretation of the meaning "*is not separable from the interaction of communication*" (2005, p25). Frascara argues that Visual Communication designers make "*substantial contributions to the clarity, effectiveness, beauty, and economic viability*" of communication. "*To attract, to retain, and to communicate are three essential functions of every message, and aesthetics plays an important role in all three of them, but it should never become a distraction*" (Frascara, 2004, p85). Interaction is not communication, and communication is not simply interaction. That needs to be clarified. I am not suggesting that Visual Communication is easily mapped over Interaction Design just because of the involvement of the 'receiver/user/viewer' in completing the experience. But for HCI to continue explore the *Aesthetics of Interaction* from a Phenomenological position, Visual Communication needs to become accommodated as a legitimate source for research, and not dismissed because its modes of learning, obeying, knowing and conforming are not quantifiably understood, or translate to an engineering design criteria of reproducible design rules.

4.2 Designing for Mind and Body

Lim et al. in their paper on Interaction Gestalt (2007) draw upon embodiment in parallel with symbolic representations (semiotics of the interface) where aesthetics is appropriated through both the analytical mind, and embodied experience. Therefore the design of an aesthetic, interactive experience needs to be inter-dependent with both body and mind working together. From a Pragmatist perspective that aesthetic experience is shaped not only through visuals, touch, smell, and hearing, but also from the past experiences of the 'receiver/user/viewer'. But past experiences can all at times be contradictory, ambiguous or complex. The importance for Visual Communication designers to organise the "*perceptual, emotional, and cognitive processes to be followed by the viewer*" (2004, p65) go beyond the issues of

aesthetics of form. The context in which it is experienced and interpreted involves cognitive and emotional responses to complete the behavioural change in the 'receiver/user/viewer', where they develop a relationship "*not only with the message but also with the source*" (Ibid., p73). As I have outlined in the previous section, within Visual Communication the designed message has an *internal* and *external* relationship between the design, the medium its represented through, and the time and place its experienced in. The socio-cultural context itself does not "*induce actions so much as shape perceptual selectivity*" (McCullough, 2005, p34), enabling the intellectual appropriation from the consummation of the experience to be made from interpretation from past experiences, rather than just unreflective understanding. Through embodiment, McCullough argues, the valuation and expression of the properties of the experience, long since "*dismissed as unmeasurable*" (p44) can be developed. Before Visual Communication can be repositioned to aid this development, the problem with understanding what aesthetics is needs to be finally discussed.

4.3 Instrumentality of Aesthetics

There is a Kantian tradition of seeing aesthetics as having no use or function beyond a pure intrinsic value (often reduced to the shorthand term 'beauty' or 'beautiful'). This is due to a functionalist assumption that everything is reducible to a 'means-end' equation, an equation to define a capacity to produce a single desired result or effect. This mode of thinking has permeated HCI as thinking about aesthetics in those narrow terms allows for measurement and conclusion of success/failure. Even in Design research, those from an 'Engineering Design' position dismiss the usefulness of Visual Communication's contributions (Love, 2010). Both Dewey, followed by Shusterman, have attempted to correct this error of thought on aesthetics. Shusterman argues that the function and value of aesthetics lies not in a specialised 'means-end' but in a more global way of serving a variety of ends. He says that aesthetics enhances, invigorates and vitalises our immediate environment thus "*aiding our achievement of whatever further ends we pursue. [Aesthetics] is thus at once instrumentally valuable and satisfying in itself*" (p9). Therefore the instrumentality of the aesthetic is not predefined by the designer but is emergent within use. An improvisation of use of an interactive system or artefact leads to a variance between each 'receiver/user/viewer' of the experience they gain, due to their own socio-cultural and intellectual appropriations. They can all feel a different degree of aesthetic experience due to their own individual behaviour. The instrumentality of aesthetics "*is connected to experiential quality and value*" (Petersen et al., 2004, p271). Frascara is useful here to support this view of aesthetics. The 'means-end' functionalist expectation of aesthetics can only lead to distracting decoration. This is where the misconception of the 'artifice' view of Visual Communication originates. But aesthetics contributes to three essential functions of visual communication: to attract, to retain attention and to communicate. Aesthetics serves the purpose within an experience to keep active in the mind of the 'receiver/user/viewer' their immediate options for continuing the experience. Therefore as Tractinsky (2004) has revealed, and as Visual Communication has always understood, higher aesthetic values aid the enjoyable continuation of an experience until consummation. Aesthetics operates within a Phenomenological Matrix (or as Visual Communicators already understand it - a context) within which the designed interaction's function, limitations, and possibilities can be understood. Visual Communication, Interaction Design and especially HCI cannot be truly understood without a context that includes "social, political, physical, cultural, and commercial contexts in which it operates" (Frascara, 2004, p86). Therefore aesthetics and usability are connected together in an orthogonal inter-relationship synthesising an enjoyable experience, rather than aesthetics having a negative, detrimental affect upon efficient functionality. It is not a case of 'means-end' but as Moggridge stated in the opening quote to this paper, a "*lasting satisfaction and enjoyment".*

5 CONCLUSION

In order to argue for Visual Communication to be repositioned in support of Interaction Design I have had to dispel some myths and misconceptions about what it does, and what the function of aesthetics is. The two main myths dispelled in this paper were that Visual Communication just did the '*aesthetic bit*', and that aesthetics had no use or function beyond '*beauty'*. Approached from a procedural, analytical, engineering position (where experience isn't discussed), aesthetics could not be reduced and measured as a functionalist equation of 'means-end'. Therefore the usefulness of aesthetics and Visual Communication design are immeasurable. But if we take experience, emotion, and interpretation into account we need to explore those aspects within an aesthetic experience. Then it becomes a cultural phenomenon not an engineering problem. Using Pragmatist philosophy to examine the *Aesthetics of Interaction* from a situated and culturally connected embodiment of the experience, aesthetics then becomes emergent from the experience through three factors. A socio-cultural context based upon the audience prior experiences; the current experience appropriated from an embodied interaction within a situated temporal-spatial physical place; and finally the means-to-*many*-ends that only emerges from the

interaction. This makes this a Phenomenological study of aesthetically experiencing interaction and closer to Visual Communication than to traditional HCI. Thanks to some exciting research from HCI, some researchers are building the theoretical bridge towards Visual Communication. Despite what detractors may say, Visual Communication is a rhetorical communicational situation from where the knowledge, attitudes and behaviour of its intended audience can be altered through the outcome of its graphic designs. Through semiology, the designers' manipulation of signs and codes, with the internal and external contexts of combined text and image, involve the target audience in interpreting the intended message of the design. This is received through similar embodied processes as used in interactive systems and artefacts. This takes Visual Communication beyond aesthetics of surface and into aesthetics of use. Like Interaction Design, Visual Communication is also concerned with designing an enjoyable experience. Its graphic designs are not passively consumed, but are *used* (even if its on a subconscious level). Aesthetics serves in both cases to attract, and retain attention so that the immediate options can be communicated. This is not the '*aesthetic bit*' added on as decoration, but it is an orthogonal factor with functionalist usability, that together synthesise into an enjoyable aesthetic experience. HCI cannot understand this without repositioning Visual Communication back into a supporting discipline to Interaction Design.

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A Can of Worms: Has Visual Communication a Position of Influence on Aesthetics of Interaction?

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Abstract

Interaction Design is a young discipline that grew out of an overlap of other science and design disciplines, its remit was the design of interactive products, services and systems for human behaviour. Visual Communication and its output of graphic design once had an early influence on Interaction Design, but this has since been devalued by the influence from more functionalist disciplines, leading to two myths about Visual Communication: it just does the 'aesthetic bit' on the interface, and that aesthetics has no real use or function beyond 'beauty'. But aesthetics cannot be reduced and measured as a functionalist equation of 'means-end'. By understanding aesthetics from a Pragmatist philosophical position, the aesthetics of interaction can be explored from a situated and culturally connected embodiment of an interactive experience. From this position aesthetics is viewed as emergent from the interactive experience through three factors: a socio-cultural context, a personal embodiment and finally a means-to-many-ends instrumentality. It is a cultural phenomenon and not an engineering problem that can be explored quantifiably. This makes this a phenomenological study, and closer to Visual Communication. The rhetorical nature of Visual Communication affords a change in human behaviour, evoking a cognitive and emotional response, making its remit about framing decision-making from use of image and text. Experience, emotion, and interpretation can only use qualitative methods to explore an aesthetic experience. This raises a more vexing question: what other design disciplines also share or rather claim a phenomenological position on aesthetics? This paper will set out to explore these amorphous boundaries to decide if Visual Communication still has an actual support position of influence on Interaction Design.

Keywords – Aesthetics, Pragmatism, Existentialism, Phenomenology, Interaction Design, HCI, Visual Communication.

Introduction

This paper forms the final part of my MPhil transfer to a PhD in Visual Communication. It continues on a theme of inquiry surrounding the influence of Visual Communication on Interaction Design (Wood, 2010), especially concerning the aesthetics of interaction. In A Can of Worms I have selected three main significant themes to explore: aesthetic experience as a phenomenon; Visual Communication and 'aesthetics of use;' and the development of a phenomenological design methodology utilising Visual Communication to study behaviour from a users point of view. Through relevant literature from three disciplines (Interaction Design, Human-computer Interaction (HCI), Visual Communication) I will illustrate how Visual Communication is more than just surface aesthetics of the interface. Using a new HCI paradigm of a Phenomenological Matrix (Harrison, 2007) that sees humans as embodied actuators within a physical and social world, aesthetics has moved from being perceived as inversely proportional to usability to a serious topic to understand designing for interactions. In doing so, I argue that Visual Communication can once more become a serious influence on designing interactions, a position it previously had squandered

(Wood, 2009). Instead of holding a position of merely designing the 'aesthetics of surface' I will present a proposition for Visual Communication as a discipline that contributes to the 'aesthetics of use' (Dunne, 1999), creating synergy with HCI to influence interaction designers through a new methodology to understand the experiences a user actually has within an interaction. Therefore bringing Visual Communication much earlier in the design of interactions.

To achieve this I will explain the rationale behind my development of a Visual Communication Phenomenological Methodology to practically aid designers of interactions. Within the paper I provide a contextual review of the literature in order to create a theoretical framework on which I will build the phenomenological methodology. As well as the design literature I present a philosophical under-pinning of theory to support it. Through a Pragmatist framing of aesthetics as emergent from experiencing it (Dewey, 1980), I lead the reader through the four existentials of spatiality, temporality, corporeality and relationality into hermeneutic phenomenology. Using Heidegger as the philosophical root, and the Hermeneutic Circle as the method to analyse and interpret experience, I finally conclude with a discussion on how my PhD practical work proposes to develop such a Visual Communication Phenomenological Methodology. I propose that such a methodology will enable designers during their idea-generation and modelling phases, to understand an experience from the point of view of their audience. With a designer's increased ability to understand the essence of an experience, based not on user needs but on their aesthetic perception of what they (want to) experience, I argue that it will lead to better user-centred design. Just prior to this I will briefly examine how phenomenology has been used and implemented in other design disciplines to date. This will strengthen my argument for a practical and visual hermeneutic phenomenology to be developed to support better design practice.

Interaction Design and the Aesthetics of Interaction

Before I begin to comment on any position of influence that Visual Communication may have on Interaction Design, I first need to define Interaction Design. It is crucial also to look below the aesthetics of the surface, the visual interface or form, into what Dunne describes as the 'aesthetics of use' (1999). The aesthetics of interaction, within which Visual Communication can, I will argue still inform and influence, places the aesthetic not on the control of the appearance but upon an interaction that reveals itself to be aesthetic in its experience.

Interaction Design emerged out of several disciplines including Human-computer Interaction (HCI) over twenty-five years ago. The term Interaction Design was coined by Bill Moggridge (2007) who felt that there was an opportunity to define a new user-centred design discipline, dedicated to creating imaginative and attractive solutions based upon real needs and desires. This would provide a designed level of aesthetic pleasure in the use of products, systems and services (p14). Interaction designer Jon Kolko (2010) describes the discipline as designing a person's physical and emotional dialogue, a satisfactory experience and engagement, resulting in a form of positive and enjoyable behavioural change. This is achievable by the interplay of aesthetics, functionality and usability that goes beyond the computer desktop screen. This "*emphasizes the human side of technology*" (pp11-13), presenting interactive opportunities within the 'aesthetics of use', where aesthetic value is culturally situated. To explore and drill-down below the surface of an interaction, into what Nake describes as the 'subface' (2008), an interaction designer needs to gain knowledge about the nature of the interaction; the intent, needs and desires of the user; and the material attributes that can be manipulated to iteratively develop the design. The materials interaction designers use differs from the materials used within Product or Graphic Design and are more "*flexible, ungraspable, and phenomenal*" (Lim, 2007, p245). It is in understanding these attributes of design and their manipulation that creates an interactive experience greater than the attributes used.

As an influence on Interaction Design's development, HCI's traditional paradigms have raised empirical, scientific, objective knowledge as the normative (Bertelsen & Pold, 2004) (Udsen &

Jurgenson, 2005). With its focus upon functionality and usability, traditionally HCI has seen anything to do with aesthetics as "*inversely proportional*" to usability (Ahmed *et al*., 2009) with warnings as to negative, detrimental affects upon efficient functionality (Tractinsky, 2004). Harrison *et al.* (2007) describe three paradigms of HCI. The first paradigm took its inspiration from HCI's roots in industrial engineering and ergonomics, and located itself firmly within an objective and functional view of design. The second HCI paradigm focused upon a "*central metaphor of mind and computer as symmetric, coupled information processors*" (p4). Petersen (2004) proposes there are five styles of interaction: *system, tool, dialogue, media* and *aesthetic*. The *system* style positions the user as part of the computer system; the *tool* style positions the user as being in control of the system, the *dialogue* style positions both the user and machine as equal partners in communication, and a *media* style places the interactive system as a mediator between human-human communication. Both the first two HCI paradigms described by Harrison are not mutually exclusive but overlap, and can be mapped onto the first four interaction styles proposed by Petersen. Petersen's framing of the fifth element of interaction as *aesthetic* connects directly to Harrison's third HCI paradigm.

In the third phenomenological paradigm the focus is upon the emergent aesthetic experience of humans as embodied actuators within a physical and social world. The exploration of designing interactions within a Phenomenological Matrix of the user's embodied and situated personal understanding is a HCI paradigm shift, This shift recognises "*a plurality of perspectives (...) taking into account but not adjudicating the varying and perhaps conflicting perspectives of users."* (Harrison *et al.*, 2007, pp7-8). Harrison *et al*. proposes that HCI's traditional position of 'objective knowledge' has shifted into a position from where knowledge arises from 'situated viewpoints' through using a matrix to understand experience (especially an experience that is aesthetic). Their argument for a paradigm shift towards a phenomenological position has developed from Prof. Don Norman's work on emotional design (2005). Petersen and Harrison both share a perspective that up to recently has been marginalised and subordinated from within the first two paradigms. A traditional HCI perspective is problematic when aesthetics becomes involved with interaction, as HCI encounters "*deep philosophical incompatibilities*" (Bardzell, 2009, p2357) with understanding aesthetics from a quantitative perspective. Without a formal externalised, repeatable process a critique of aesthetics within interaction is not possible, but through framing aesthetics as emergent from a Pragmatist philosophical perspective a phenomenological methodology can be used to understand the essence of an aesthetic experience. The exploration of designing interactions within a matrix of the user's embodied and situated personal understanding is a HCI paradigm shift bringing it closer to Visual Communication.

John Dewey, a pragmatist philosopher describes aesthetic experience as the "*conversion of resistance and tensions, of excitations that in themselves are temptations to diversion, into a movement toward an inclusive and fulfilling close*" (1980, p58). Put simplistically, an aesthetic experience is an enjoyable interaction - with a beginning, middle and a culmination that is immersive and pleasurable in its performance and on reflection. Dewey, and later Richard Shusterman (1992), proposed a pragmatic philosophical framework on how aesthetic experiences are structured. Csikszentimihalyi (1990) in his psychology research on FLOW lists eight major components of a phenomenology of enjoyment that can frame an autotelic experience that Dewey would describe as aesthetic. These components are all (or mostly) present in any particular aesthetic experience and are: a chance of completing; concentration on actions; clear goals; immediate feedback; effortless involvement; a sense of control over self; a concern for self disappears; and a sense of time is altered. In these phenomenological components the four existentials of spatiality, corporeality, temporality and relationality manifest themselves. The move to a phenomenological paradigm within HCI allows for a profitable linkage with Visual Communication to support Interaction Design. This linkage is not superficial in a desire to place the emphasis solely upon the visual design of the surface. It is within this phenomenological space that the rhetorical voice of Visual Communication can connect and consociate with Interaction Design. But what is

phenomenology and how can it become useful for designers?

Phenomenology is both a philosophical movement and a research methodology. Phenomenology performed step-by-step attempts to illustrate a phenomenon by eliminating "*everything that represents a prejudgment, setting aside presuppositions*" (Moustakas, 1994, p41) to see the phenomenon in an unfettered way. In phenomenological research there are two forms, descriptive (eidetic) and interpretive (hermeneutic). Descriptive phenomenology follows the philosophy of Edward Husserl, and hermeneutic phenomenology the philosophy of Martin Heidegger (Lopez, 2004, p727). Heidegger uses the term Dasein to describe existence in respect to our own understanding of being in the world. Our "*Being grows out of the average understanding of Being in which we are always involved*" (1993, p49). This is ontological as to understand Being is "*itself a determination of Being*" (p54). This existential understanding is a "*constitution-of-Being of the being that exists*"(p55) in the world, and phenomenology is a method through which to study the phenomena of Being, an expressed maxim of "*To the things themselves!*" (p72). Phenomenology investigates the Being of beings, on studying the 'how' and 'what' meaning of a phenomenon, making known the structures of Being. Hermeneutic phenomenology proposes that all understanding is interpretive (Johnson, 2000, p143) and the ontological investigation of bringing out the Being of beings helps thematise that structure using a Hermeneutic Circle of interpretation.

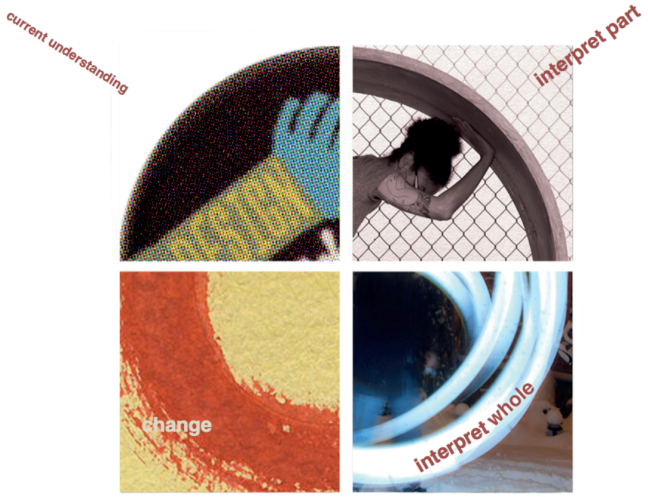

Figure 1: The Hermeneutic Circle of Interpretation

The Hermeneutic Circle reduces the themes of the studied phenomenon to "*uncover commonalities and differences*" (Benner, 1994, p104) as seen through the eyes of the individual, to illuminate "*that would have been overlooked in a purely descriptive approach*" (Lopez, 2004, p734). In a phenomenological study the researcher enters the research open to understand the phenomenon fully through the eyes of others - to understand their behaviour within that specific experience of the phenomenon. This hermeneutic process is contextual to a situated, cultural and historical "*meaning of being in the world*" (Earle, 2010, p288) (Johnson, 2000, p144) and the interpretation is conditional on the temporality of Being (Heidegger, 1982, p17) between the apprehension of Being and the understanding of the uncovered themes of Being within a studied situation. This systematic movement within a Hermeneutic Circle of interpretation (see Fig. 1) affords the researcher to check for "*incongruities, puzzles, and unifying repeated concerns*" (Benner, 1994, p113), and leads the researcher through a cycle of "understanding, interpretation, and critique" (p120) to "*uncover naturally occurring concerns and meanings*" (p112) to understand a phenomenon as directly as experienced, as directly as possible. Other qualitative methods seek to examine the social-cultural limitations or delimitations of the observed by 'looking in' -

phenomenology is concerned with getting inside the observed in order to 'look out'. In the next section I will explain how this connects to Visual Communication, and in turn how this discipline can influence Interaction Design.

Visual Communication and Aesthetics of Use

Visual Communication is a design discipline focused upon communication through the manipulation of the relationship between text | image. The discipline's name places the emphasis upon the method [design], the objective [communication] and the medium [visual], rather than just the creation of graphic forms [outcomes] (Frascara, 2004, p4). Within this discipline the two traditional design outcomes are graphic design and illustration, but it now also includes motion and interaction. Graphic design certainly is a commercial activity with a connection to marketing and advertising, but it performs beyond mere subservience to business models. It shapes and reflects much of the visual culture of the modern world (Crowley, 2004), but as a discipline Visual Communication is misunderstood by other disciplines (Wood, 2009). In a literature review of Interaction Design and HCI any of the following terms are used when they are actually referring to Visual Communication: Visual Design, Communication Design, Interface Design, Web Design, and Graphic Design (see Table 1).

	Authors
Visual Design	(Bardzell, 2009) (Fogarty *et al.,* 2001) (Hashim *et al.,* 2009) (Heller, D., 2005) (Kolko, 2010) (Lim *et al.,* 2007)
Communication Design	(Ahmed *et al.,* 2009) (Saffer, 2006)
Interface Design	(Ahmed *et al.,* 2009) (Baljko & Tenhaaf, 2008) (Bertelsen & Pold, 2004) (Harrison *et al.,* 2007) (Hashim *et al.,* 2009) (Lim *et al.,* 2007) (Udsen & Jorgensen, 2005)
Web Design	(Bertelsen & Pold, 2004) (Tractinsky, 2004)
Graphic Design	(Gajendar, 2008) (Hashim *et al.,* 2009) (Kolko, 2010) (Lim *et al.,* 2007) (Löwgren, 2007) (Lundgren, 2009) (McCullough, 2005) (Motamedi, 2007) (Tractinsky, 2004)

Table 1: Interaction Design and HCI literature typology of non-consistent terms used instead of Visual Communication

Although Visual Communication designers traditionally have focused upon practice, there is a theoretical basis to their work that maximises the transmission of the central message within their design solutions. The sender of the message operates from a '*perspective of intention*,' the messenger (the designer) operates from a '*perspective of proximity*' and the receiver reacts interpretively from a '*perspective of reception*' using their feelings and perception (Bergström, 2008, pp32-33). The materials to achieve this go beyond the printed page, and include typography, colour, form, texture, line, weight, composition to create discourse and emotional engagement with the communication. Barnard uses the phrase "*communication is a cultural phenomenon, not an engineering problem*" (2005, p28), with which he means communication happens through an embodied position where understanding is framed within specific socio-cultural contexts. This leads to an enactment or a change in behaviour. Therefore this cannot be reduced to functionalist instrumentality. The shaping and selecting of the most apt visual combination of elements within a suitable socio-cultural context is important in order to transmit an intended message. The semiotic process of the visual signifier leading to a signified communication to an audience is within a specific socio-cultural rules, and is intended to rhetorically elicit some form of embodied

behavioural change in the audience. The designer's skill and ability to do this effectively is more complex than it first appears, and less self-serving and subjective the more it is understood. It is true, to a degree, that to some designers their work is implicit and creatively intuitive and devoid of theoretical rules; but the discipline is deeper than this.

Jorge Frascara attempts to reposition the understanding of Visual Communication as a proactive facilitator of behavioural change. The core of the argument rests in the relationship between text | image to incite a change of behaviour in the viewer, using the rhetorical and semiotic structure underlying this relationship. Frascara says, "*It would be a fundamental error to believe that in design one can deal with the form independent of content, or with sensorial, independent of the cognitive and the emotional.*" (p65). Barnard folds into this the semiological roots of Visual Communication, "*Signs and codes are the bases of meanings in semiology. And signs and codes are explained in terms of learned and variable cultural rules*" (p28). Through this framework for identifying behaviour, experience is evoked by tangible and experiential engagement with an artefact or in a situation, whether physical or digital. Interaction designer Jon Kolko sees this contextual framework as a methodology to connect "*people, technology, and the emotional qualities of sensory data*" (p41) together to discover the effectiveness, scalability, usability and engagement of the solution. His use of the term 'sensory data' suggests that data is mediated in some way with emotional qualities. To understand this tension between structured data on one hand and the freer emotional qualities it resonates is, I argue, phenomenological and Visual Communication has historical precedence in balancing the "*tension between structure and freedom*" (Helfand, 2001, p61).

Some of the early Modernist progenitors that influenced the discipline's development, Rodchenko, Lissitzky and Moholy-Nagy, moved "*freely across the boundaries*" (MacDonald, 2004) that defined its development into a less commercial and more experimental, rhetorical direction. From the manifestos of Contructivism, Futurism, de Stilj through to the minimalism of Bauhaus and the International Style; the semiotic experimentation of visual language has led to the position where the viewer is equally involved in the processing of the visually communicated message. Typographer Jan Tschichold strove for a clear and unambiguous form of emotional clarity in communication. In his essay on New Typography reprinted in Armstrong's book on Graphic Design Theory, Tschichold urged in 1928 that "*a fresh and original intellectual approach is needed, avoiding all standard solutions*" (2009, p38) to achieve communication. Visual Communication's visual language has since developed "*a 'grammar' of contrasts (instability/balance, asymmetry/symmetry, soft/hard, heavy/light)*" (Lupton and Miller, 1999, p64). Within this tension comes a benefit of 'structured clarity' with a capacity of inventive expression, a liberation of a "*subjective point of view as an enhanced expression of fact - not at the expense of it*" (Helfand, 2001, p62).

I argue that a methodology adapted from phenomenology would help reposition Visual Communication as an influence upon Interaction Design. From the literature on Visual Communication the word phenomena is widely used (Heller & Ballance, 2001; Margolin & Buchanan, 1996; Williams & Newton, 2007; Huck *et al*, 1997; Barry, 1997) to describe the discipline's internal and external characteristics, but only two authors take their theses deeper into phenomenology (Hill & Helmers, 2004; Smith *et al*, 2005). But all stop short from using phenomenological methodologies to explore their individual perspectives. Kenney (2009) in his book on Visual Communication Research Designs, features examples of Ethnography, Discourse Analysis and Content Analysis as qualitative research methodologies. But nothing on phenomenological methodologies despite the literature using the term 'phenomena' quite freely. Before presenting a new direction for Visual Communication to move across the boundaries once more in support of Interaction Design, a brief review of phenomenology within other design disciplines needs to be discussed.

Phenomenology in Other Design Disciplines

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Phenomenology in Other Design Disciplines

an Aristotelean/Husserlian perspective. This places his methodology within an Eidetic (descriptive) model of phenomenological research, rather than a Heidegerrian Hermeneutic (interpretive) model.

These featured examples of design using a phenomenological perspective to understand their practice, remain purely a theoretical model of the usefulness of this approach to design. This ontological perspective of meta-inquiry into how a designer 'designs' may go some way to explain design processes and design thinking, framing it with strong links to philosophical schools of thought. But this meta-inquiry falls short of providing designers with a way of applying philosophical theory within their design process to help them understand whom they are designing for more intimately. Ethnographical and anthropological methodologies uncover the socio-cultural norms and proclivities of the studied group; the group's structured propensity for doing things this way or that way, or highlighting the un-social or sub-cultural variations and alternatives to the group norm. It is only through phenomenology that the individual within the group's experience can be exposed and understood as they experienced it. This makes phenomenology a very useful methodology to add extra scope to understanding the design's intended audience, by providing data for the designer to understand the themes of an audience's actual experience. But from the design literature studied so far, the metaphysical understanding of how a designer 'designs' is focusing phenomenology on the study of practice instead of on the application within practice. My proposition of a Visual Communication Phenomenological Methodology focuses upon application to design practice.

Traditional phenomenological methodology is a pure textural method resulting in written papers and case studies on a particular phenomenon. Although description has long been sufficient to understand a phenomenon, description is not solely useful to a designer. Visual stimuli are a valued source for inspiration, what Gaver describes as "*inspirational data*" (1999, p25). This data is not comprehensive information but fragmentary clues for the designer to use to understand the design problem from the perspective of their target audience, capturing an experience that needs to be designed for. By visually interpreting that data through a richness of personal experience, themes of felt experience can be isolated and visually understood. It has been established that visualising of data has been "*central to many lines of inquiry amenable to interpretive phenomenology, particularly social practices, embodied skills, and the study of lived experience"* but is not *"yet well developed*" (Benner, 1994, p120), and van Manen (1990) has commented that the phenomenological researcher must be "*creative in finding approaches and procedures uniquely suited*" (p163) to their purpose. I have taken guidance from van Manen's comment to use Visual Communication to dovetail with those HCI researchers following Harrison's lead, through the strengths of Visual Communication techniques of visual manipulation to aid communication. In the final section of this paper I propose that a visual interpretive methodology can be developed that will go some way to use phenomenology in a practical way to aid designers to understand experience as directly from the perspective of their target audience.

Conclusion

Moving Across Boundaries

Within my current ongoing PhD research I aim to develop such a Visual Communication Phenomenological Methodology and to test visualising themes of a specific aesthetic experience of using visual data from my recent research project Internal | External 2010. This project generated textual and visual data of individual's aesthetic experience of using an interactive artefact. This small project was conducted under a phenomenological framework using probes, contextual interviews, observations of an interactive experience, and recording techniques to examine what is effective in the formation of a Visual Communication Phenomenological Methodology. The project took place within a gallery environment in the University of Edinburgh's Inspace gallery, made possible through the support of Interface3, New Media Scotland and Mark Daniels. Within a semi-

public and semi-controlled environment, participants were observed in an environment that was neither clinical nor familiar. Through volunteers individual immersion within an experience in a gallery context, and within a time constraint of using an interactive artefact, a "*sensation of their own actions*" (McCarthy and Wright, 2004, p85) could become visually interpreted, revealing rich themes that may be understood as manifested structures of a person's internal and external individual experience.

I propose that a development of a Visual Communication Phenomenological Methodology will enable designers to understand an experience from the point of view of their audience to aid better user-centred design. Initially this will enable Interaction Designers during their idea-generation and modelling phases to understand the essence of an experience, based not on user needs but on their aesthetic perception of what they (want to) experience. This alternative to the goal-orientated persona will provide "*a powerful communication tool that helps developers and managers to understand design rationale and to prioritize features*" (Cooper *et al.,* 2007, p20) in new and fresh ways.

Future Work

My proposed phenomenological methodology is intended to break experience down into constitutive themes, through a Hermeneutic Circle of interpretive analysis. These themes can be individually visually interpreted to reveal a structure of enjoyment within the experience. Then the themes can be combined and visually interpreted as a whole, before being tested for validity and uniqueness to the particular experience under study. This then changes the original understanding, moving the research forward into a deeper understanding of how that experience is structured. Each turn within the Hermeneutic Circle externalises the structure of the studied experience. Finally an external typology of themes would then be further interrogated after using the technique of imaginative variation to reveal (through elimination of the non-specific) the structure, the essence of the phenomenon. By focusing on the themes of the experience each person's experience is reduced down into visual descriptors of the internal. These individual internal descriptors would then be composited into a collective visual internal descriptor of the experience. This Visual Communication framework is currently only a proposition for my future PhD work. I am currently engaged in a pilot test of the methodology and will need to discuss my initial results and developments in future papers.

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Running in Hermeneutic Circles: A Visual Phenomenological Methodology

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Abstract

Can the themes of an experience be visualised using a new Visual Phenomenological Methodology to aid interaction designers to design better interactions? Can the creation of such a design methodology cultivate an alignment between HCI with Visual Communication as influences over interaction design research into the *aesthetics of interaction*? This symposium paper will discuss how a framework for such a methodology can be structured, and explore how the first of its four stages can be rigorously synthesised from phenomenological research methods using Visual Communication techniques.

Visual Communication is a design discipline focused upon communication through manipulating the relationship between text | image. Frascara [1] repositions the understanding of Visual Communication as a proactive facilitator of cognitive, emotional and physical behavioural change in the viewer within a specific socio-cultural context. This is achieved through rhetorical and semiotic frameworks [2] communicating information effectively in new aesthetic forms across a variety of old and new media. Interaction designer Jon Kolko [3] sees such a contextual framework as a way to connect "*people, technology, and the emotional qualities of sensory data*" together to interpret the effectiveness, scalability, usability and engagement of a tangible and experiential engagement. His use of the term "*sensory data*" suggests that data is mediated in some way. If data is to be understood as sensory with emotional qualities, then pragmatically an aesthetic is emerging. This is a phenomenological position. Since the development of graphic design as a recognised design field [4] the Visual Communication discipline has explored the '*cultural phenomena*' in order to connect, to communicate, and to alter behaviour. The literature often discusses '*phenomena'* but then uses other qualitative methodologies to try and understand it [5] such as Grounded Theory, Ethnography etc. These qualitative methodologies, such as ethnography and anthropology, just study the context of an experience of an observed group. They uncover the group's socio-cultural norms and proclivities, or un-social or sub-cultural variations and alternatives to the group norm. It is through a phenomenological framework that experience can be understood as directly as possible from the point of view of a person.

The move in HCI led by Harrison [6] to a phenomenological paradigm affords a profitable linkage with Visual Communication to support Interaction Design. This HCI perspective allows for synergy with the strengths of Visual Communication, and can provide an alternative design research methodology within which to study an '*aesthetics of use*'. [7] In a pragmatic philosophical way the meaning of what is experienced is "*constructed on the fly, often collaboratively, by people in specific contexts and situations, and therefore that interaction itself is an essential element in meaning construction.*" [8] This meaning construction is interpretable and is "*irreducibly connected to the viewpoints, interactions, histories, and local resources available to those making sense*" [9] of the experience. In applying Visual Communication methods into Visual Phenomenological Methodology using a four stage visual *hermeneutic circle,* [10] phenomenological techniques of interpretation can be adapted to reveal the structure of an experience, visually captured and interpreted as themes of an experience. Such a methodology is more than '*hermeneutics using*

pictures' as it connects HCI and Visual Communication together in support of Interaction Design. Jeffrey Bardzell [11] positions HCI itself as hermeneutic, urging HCI colleagues to use a hermeneutic circle in their inquiries, as it is "*not a trap to avoid, but rather an opportunity to participate in the constructive development of (HCI)*".

A *hermeneutic circle* is a dialogical interpretative process between the researcher's pre-understanding (bias) and understanding (objective) [12] of a phenomenon. By beginning with a researcher's pre-understanding, personal bias can be identified and made explicit to understand the phenomenon in an unfettered way. [13] In the process fresh understanding is made by reciprocally relating the studied experience back to already existing understanding. Then that understanding is related back to the experience to find new insights [14] so that the interpretation externalises the structure of the studied experience reducing all the possible meanings down into an the '*essence.*' [15] A Visual Phenomenological Methodology, using a four stage visual hermeneutic circle to reveal the '*essence*' offers a practical design tool to interaction designers during their idea-generation and modelling phases to turn "*sensory data*" into "*inspirational data*". [16] This "*inspirational data*" is interpreted not from user needs but from user's aesthetic perception of what they (want to) experience during an interaction, thus aiding the design of better interactions.

Visual stimuli are a valued source for inspiration to designers and Bill Gaver developed a 'cultural probe' as part of a research project, to generate "*inspirational data*". The probe was a kit of inspirational materials designed to elicit from research participants visual and textual "*inspirational responses (...) fragmentary clues about (research participant's) lives and thoughts.*"[17] These probes return un-scientific, un-comprehensive data that a designer outlined and interpreted to understand the set design problem[18] from the perspective of their target audience. Crabtree describes probes as providing useful insights during "*an ongoing and difficult process of design*"[19] that can inspire the design phase. Lopez and Willis[20] summarise that an interpretative approach can "*bring to light hidden features of an experience that would be overlooked in a purely descriptive approach.*" As Mattelmäki[21] states that when research participants are asked "*to verbalise experiences, they become more aware of them.*" A Visual Phenomenological Methodology, although related to Gaver's '*cultural probe*' or the established method of personas, is discernibly different to its progenitors. It naturally fuses a phenomenological methodology within a visual context, to utilise the inherent qualities of Visual Communication to visualise the revealed internal and external qualities of a multi-dimensional and multi-layered meaning of an experience.[22] This methodology's proposed framework will be as follows.

The Visual Phenomenological Methodology's first *Pre-understanding* stage begins with processing the "*sensory data*" by the researcher. Each participant's narrative testimony of a studied experience is identified and sectioned into separate explicit themes of researcher-identified themed moments within each participant's experience. This pre-understanding bias is challenged through the next stage of *Visual Interpretative Reduction*. This is so that rigorously fresh understanding can emerge through the *hermeneutic circl*e and un-biased by the design researcher. Every isolated theme becomes a mini narrative that is central to that participants' internal/external story of what the participant saw/thought/felt/experienced. Each theme can be reduced down into a rich visual that interprets, using image and typography, the main 'essence' of the theme. When each interpreted theme is placed in order sequentially, they illustrate an inspirational narrative leading to a revealed meaning of that participant's experience. The third *Imaginative Variation* stage in the methodology focuses on establishing the validity of the revealed meaning of the experience by visualising imaginative variations to the composite visual themes. These are then re-examined against the original "*sensory data*" to reveal a valid core structure for that experience. The final phase of a turn through the *hermeneutic circle* is a visual synthesis. In its own right the synthesis is a conclusive piece of Visual Communication represented with validity and all the reliability a qualitative model can provide, to show the 'how' and 'why' of experience as directly experienced.

This paper will discuss the initial results of using an 'experience probe' to elicit "*sensory data*" from a group of research participants to test the first pre-understanding phase of the methodology. This 'experience probe' formed part of the Internal | External 2010 research project, and was a phenomenological variant on Gaver's 'cultural probe.' It consisted of a DVD size tin case containing two sealed tasks. These tasks comprised of postcards and an emotional collage. The images and questions involved were only related on an abstract level, and the images were carefully selected to provoke the participant to question their own awareness of their previous experiences using text | image. In doing so the participants externalised their own experience through self-documentation in forms that cannot be captured in any other way. This rich "*sensory data*" then provided the researcher with narrative testimony of actual experiences that could begin to be sectioned into separate explicit themes visually representing each participant's experience. This experiment into developing a rigorous and valid Pre-understanding stage is incredibly important to the creation of such a new design research methodology. Further questions are raised that need further discussion as to the nature of the role of the researcher's explicit bias, and how that can this bias objectively help to structure the visual interpretation of a core experience.

Endnotes

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Visually Interpreting Experience: Circle of Visual Interpretation Methodology

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ABSTRACT

This paper provides an overview of the *Circle of Visual Interpretation* methodology that is workshopped during Interacción 2014. This new method uses visual interpretation techniques to phenomenologically reveal extra detail of user behaviour from within user research. The *Circle of Visual Interpretation* methodology is aimed at design teams engaged in designing interactions to use during their ideation phase. Through visual interpretation a dialogue between designers and their target audience is phenomenologically crafted. From engaging in this *hermeneutic-semiotic* process fresh understanding regarding user motivations behind user actions visually emerges. In this paper each practical step in this methodology is summarised and illustrated with examples from a user research project.

Categories and Subject Descriptors

H.5.m. Information Interfaces And Presentation; A.0 General; H.1.m Miscellaneous; E.m Miscellaneous.

General Terms

Design, Experimentation, Human Factors, Theory.

Keywords

Hermeneutic Phenomenology, Interaction Design, Methodology, Method Cards, User Experience, Moments, Visual Communication, Visual Interpretation.

INTRODUCTION

The *Circle of Visual Interpretation* methodology is a new qualitative method that synthesises Heideggerian hermeneutic phenomenology, practical Visual Communication techniques, and the semiosis of the pragmatist C.S. Peirce [1] (*hermeneutic-semiosis*) into an immersive and discursive visual existential dialogue between designer and user. It is designed to help interaction designers during their ideation phase to improve future interaction designs through visually understanding the existential themes that define a user experience. By adapting a philosophical tool called a hermeneutic circle [2] to reveal the essence [3] of an experience, visual interpretations of what users really do, think, feel, etc., can be crafted by designers. The methodology probes "what is genuinely discoverable and potentially there, but not often seen" [4]. These visual interpretations inform a design team by facilitating a deeper (visually communicated) understanding of the micro and macro states of an experience at the same time that reveals the subconscious motivations of users when they're engaged in an interaction. The method is structured through a set of method cards that allow for modularity and adaptation to the needs of a design team, and this paper gives an overview of the process with examples of visual interpretations. These example interpretations are visualisations of an aesthetic experience of using an unfamiliar touchscreen in a gallery setting, taken from a previous *Internal | External 2010* project.

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INTERNAL | EXTERNAL 2010 PROJECT

This paper is constrained within a word count that cannot provide enough space to go into depth about *Internal | External 2010*. *Internal | External 2010* was a research project identifying evidence of an aesthetic experience [5], and took place in the University of Edinburgh's Inspace gallery. Eleven participants were immersed within an experience of using a touchscreen in a gallery context against a time constraint. Csikszentimihalyi's eight major components of a *phenomenology of enjoyment* [6] were used to identify the aesthetic experience. From this a "sensation of [the users] own actions" [7] was captured qualitatively as "sensory data" [8] through videoed observation, an experience probe, and two semi-structured contextual interviews. This sensory data formed the raw user research to later apply the *Circle of Visual Interpretation* methodology to.

CIRCLE OF VISUAL INTERPRETATION METHODOLOGY

Part 1: Coding Key Experiential Moments

Step 1: Building on the van Kaam coding method [9] that Moustakas adapted, [10] user research on a shared interactive experience (similar to the one a design team needs to design for) is phenomenologically examined to identify and label key moments from beginning to end of that experience. Once key moments are coded as such the visual interpretation begins.

Part 2: Visually Interpreting Core Themes

Using the method cards a visual hermeneutic circle of interpretation begins to reveal the core THEMES of a user's experience. **Steps 2-3:** Within each experiential moment there is an *object* that forms the focus for interpreting a core THEME of that moment. Its *object* is itself defined by a specific *quality* and a *context*, which are each visually interpreted before combining them together in Step 3 to construct a single image that represents that moment (Fig. 1) as the designer understands it.

From left to right: Figure 1. An individual moment explained. Figure 2. One individual's experience visually interpreted. Figure 3. Clustering. Figure 4. A final visual interpretation of the structure of an experience.

Step 4: These individual visually interpreted moments of each user's experience are placed in sequential order (Fig.2) into a new image that forms a thematic storyboard of each user's visually interpreted experience. By doing so the parts that make the whole experience can be compared to show what is variable in such an experience and what doesn't vary. It is these unvarying THEMES that phenomenologically communicate the collective experience the designer needs to understand.

Part 3: Visually Interpreting Experiential Structure

As Steps 3-4 reduce several individual experiences into individual visual interpretations of an experience, **Steps 5-7** circles deeper into revealing the structures behind what was collectively experienced. **Step 5:** By identifying all non-varying THEMES from Step 4 they are clustered around common areas for the last phase of phenomenological reduction. These clustered themes are indicative of the parts that map a structuring of the whole experience. Those THEMES that are unique to only one user do not qualify and are dismissed as for being too idiosyncratic.

Step 6: Once all non-varying THEMES are clustered a new synthesised image (Fig. 3) is visually interpreted to summarise each general THEME. This reduces the each THEME beyond any one personal testimony to reveal the shared experiential structure of the whole studied experience. **Step 7:** Finally one combined sequential visual interpretation of the experiential structure is revealed (Fig. 4), providing a visual story that takes a similar form to Step 4 as a sequence of what was commonly seen, felt and done in the whole experience.

DISCUSSION AND FURTHER WORK

Using a methodology based on phenomenology can be daunting for those coming to it for the first time. Therefore the choice to disseminate the *Circle of Visual Interpretation* methodology as method cards follows an industry precedent [11] as a model that all types of interaction or user experience designers would be familiar with. Underpinning the cards is a strong theoretical ground that can be summarised as *hermeneutic-semiosis,* as it synthesises hermeneutic phenomenology with Peircean semiosis in order to visually interpret experiences. The methodology is modular and the cards offer a way for designers to use some of or all of the methodology as desired, depending upon confidence levels, experience and specific user research.

The methodology is a discursive and immersive existential dialogue between designer and the potential user, one that creates a visual language through *hermeneutic-semiosis* to explain user motivations that emerge from the designer's own phenomenological enquiry into the user research. The method cards are not commercially available and as the methodology is used or workshopped at conferences then the pack of method cards are iteratively updated. The methodology has previously been workshopped with interaction designers, with them taking a pack of method cards back to their own organisations to apply the method in their own projects. As designers engage in applying the methodology in their own ideation phases, feedback from their findings will iteratively develop the method cards into a more streamlined process.

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